

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In Re Application of :)	Confirmation No.: 9809
)	
John E. <i>Holland et al.</i>)	Art Unit: 2831
)	
Serial No.: 10/075,786)	Examiner: William H. Mayo III
)	
Filed: February 13, 2002)	Docket No. 3781-022
For: PROTECTIVE COVER		

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF

Sir:

This Appeal Brief is filed pursuant to 37 CFR 41.37, a Notice of Appeal having been filed on January 4, 2010.

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the present application, JHRG, LLC.

II. RELATED APPEALS AND INTERFERENCES

On March 3, 2005, the Board of Patent Appeals and Interferences entered a Decision on Appeal in this application, affirming the rejection of then existing claims 1-13 and 27-40 (Appeal No. 2005-0288). A copy of that decision is included in the Related Proceedings Appendix.

On November 13, 2007, the Board of Patent Appeals and Interferences entered a Decision on a second Appeal in this application, affirming the rejection of then existing claims 1-13 and 27-40 (Appeal No. 2007-1962). A copy of that decision is included in the Related Proceedings Appendix.

No other prior or pending appeals, interferences or judicial proceedings are known to Appellant or Appellant's legal representative, which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-3, 8-13, 27-29 and 34-39 are pending.

Claims 4-7, 14-26, and 30-33 have been cancelled.

Claims 1-3, 8-13, 27-29 and 34-39 are rejected.

The final rejection of claims 1-3, 8-13, 27-29 and 34-39 is being appealed.

IV. STATUS OF AMENDMENTS

An Amendment After Notice of Appeal Pursuant to 37 CFR 1.116 and 41.33 was filed on January 7, 2010, following the Final Rejection of August 4, 2009.

The Amendment After Notice of Appeal was entered as indicated by the Advisory Action dated January 21, 2010.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claims 1-3, 8-13, 27-29 and 34-39 read on the specification and drawings of the application as follows:

Claim 1	Disclosure of S.N. 10/075,786
1. A protective sleeve for lengths of material such as electrical cable, hoses, ropes, hydraulic lines, tethers, and lanyards used in	The present invention relates to the field of protective coverings, and, more particularly to a protective cover for lengths of material such as

<p>environments such as airports, docks, and construction sites in which said lengths of material are moved back and forth across abrasive surfaces and subjected to abrasion, chemicals, moisture, and weather extremes,</p>	<p>ropes, tethers, lanyards, etc. of the type that are likely to be subjected to continuous abrasion and/or exposure to undesirable environmental conditions or chemicals (p. 1, lines 8-11). The present invention is directed to a simple, yet effective, abrasion-resistant protective system for lengths of material such as hoses, cables, ropes, etc. of the type used in high abrasion applications (p. 2, line 13-15). Also, as used herein, “rope” includes, but is not limited to ropes, cords, braids, strands, tapes, lines, lanyards, tethers, halyards, etc., formed from either natural or synthetic materials, or both (p. 2, line 19-21). For example, mooring lines used in the maritime industry require frequent replacement due to constant abrasion and exposure. Other tethers and fastening lengths used in construction, on heavy equipment, and any other source of exposure and/or abrasion, will benefit from the protection offered by the protective cover of the present invention. Likewise, the resistance that the protective cover of the present invention has to chemical exposure and ultraviolet radiation makes it attractive for covering literally any type of material length. Thus, whether the length of material itself is used for conveying, restraining, binding, etc., the protective cover of the present invention has applicability (p. 4, lines 10-19). As shown in Figure 1, one aspect of the present invention is directed to a simple, yet effective, abrasion-resistant protective system for lengths of material such as hoses, cables, ropes, etc. of the type used in high abrasion applications, such as the airline industry. (Fig. 1; p. 5, lines 7-9).</p>
<p>said protective sleeve encasing said length of material, having open ends and formed of an elongated sheet consisting of a woven, lightweight fabric, with a thermoplastic film bonded to at least one side thereof,</p>	<p>Shown generally as 10 in Figure 1, in its simplest form the protective cover comprises a sleeve having an outer surface 12, an inner surface 14, and open ends 15, 17. Protective cover 10 is formed from a singular length of woven fabric with a single layer that is sewn together along longitudinal edges to form a seam 16. (Fig. 1; p. 5, lines 9-13). It has been found that a thermoplastic film of polyethylene or ethylene vinyl acetate suitably bonds to fabrics formed from high-performance yarns, including SPECTRA® (p. 6, lines 17-19).</p>

<p>the fabric being made substantially of yarns formed primarily of long chain polyethylene fibers having a tensile modulus equal to or greater than 150 grams/denier, and a tenacity equal to or greater than 20 grams/denier,</p> <p>the yarns having a denier between 400 and 1000,</p> <p>the fabric having a warp and fill density of between 30 and 36 ends per inch, and</p>	<p>As used herein, “high strength yarns” means yarns formed from fibers having a tensile modulus equal to or greater than 150 grams/denier and a tenacity than 7 grams/denier. In the preferred embodiment, the yarns used to form the woven sheet are formed from long chain polyethylene fibers available from suppliers, such as Allied Signal, under the trademark SPECTRA® (p. 5, lines 15-19). Hems are sewn into the edges 26, 28 and ends 27, 29 to prevent raveling thereof. The warp and fill yarns are desirably in the range of between about 400 and 1,000 denier and the warp and fill picks are in the range of about 30 to 36 yarns per inch each (p. 5, lines 30-32).</p>
<p>the thermoplastic film selected from the group consisting of polyethylene and ethylene vinyl acetate</p>	<p>It has been found that a thermoplastic film of polyethylene or ethylene vinyl acetate suitably bonds to fabrics formed from high-performance yarns, including SPECTRA® (p. 6, lines 17-19).</p>
<p>wherein the protective sleeve not only protects the lengths of material thereunder, but the fabric yarns themselves are resistant to deterioration from chemicals, fuels, as well as being highly resistant to abrasion, cuts, and the fabric of the sleeve is resistant to heat build-up as a result of relative movement between the sleeve and the length of material.</p>	<p>Fabric so formed from SPECTRA®, for example, has a high level of tear-resistance, abrasion-resistance, cut-and-puncture-resistance, resistance to low temperatures, and resistance to chemicals such as aviation fuel and oils (p. 5, lines 21-23).</p>

Claim 2	Disclosure of S.N. 10/075,786
<p>2. The protective sleeve of Claim 1 wherein said fabric is formed from yarns containing at least 70 percent high performance yarns long chain polyethylene fibers.</p>	<p>For instance, in applications in which protective cover 20 may be subjected to tensile stresses in the horizontal axis that could create “creep,” or stretching, the fabric may be formed with a blend of yarns comprising up to 305 KEVALR® with SPECTRA® construction. That is, blended yarns comprising up to 30% of the yarn ends being formed entirely from high-strength filaments, would provide an acceptable combination. p. 6 lines 2-8.</p>

Claim 3	Disclosure of S.N. 10/075,786
<p>3. The protective sleeve of Claim 1 wherein said fabric has a weight of between about 5 and 8 ounces per square yard.</p>	<p>The woven fabric sheet is a single layer with a preferred weight between about 5 and 8 ounces per square yard. p. 5, l. 28-29.</p>

Claim 8	Disclosure of S.N. 10/075,786
<p>8. The protective sleeve of Claim 1 wherein said sleeve is formed as an elongated sheet having opposed longitudinal edges, said opposed longitudinal edges including means releasably attaching said opposed longitudinal edges together around the length of said material.</p>	<p>Means for fastening the length of fabric and holding it in place are affixed along the opposed longitudinal edges of the fabric length. The fasteners preferred for this application are hook and loop strips that allow the sleeve to be completely closed along its entire length. Hook and loop fastening strips are most commonly available under the trademark VELCRO®. To ensure extra holding capability, either multiple strips may be used or wider strips may be affixed to the edges of the length of fabric. Alternatively, other fasteners such as snaps, ties, and the like could be used. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. These include, but are not limited to adhesives, bands, snaps, buttons, zippers, etc. (p. 3, line 20, 21 and 26-31; p. 6 line 23-24; p. 7 line 2-3.).</p>

Claim 9	Disclosure of S.N. 10/075,786
<p>9. The protective sleeve of Claim 8 wherein said means for fastening said opposed longitudinal edges comprises hook and loop material.</p>	<p>Means for fastening the length of fabric and holding it in place are affixed along the opposed longitudinal edges of the fabric length. The fasteners preferred for this application are hook and loop strips that allow the sleeve to be completely closed along its entire length. Hook and loop fastening strips are most commonly available under the trademark VELCRO®. To ensure extra holding capability, either multiple strips may be used or wider strips may be affixed to the edges of the length of fabric. Alternatively, other fasteners such as snaps, ties, and the like could be used. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. These include, but are not limited to adhesives, bands, snaps, buttons, zippers, etc. (p. 3, line 20, 21 and 26-31; p. 6 line 23-24; p. 7 line 2-3.).</p>

Claim 10	Disclosure of S.N. 10/075,786
<p>10. The protective sleeve of Claim 1 wherein said sleeve is formed as a plurality of bands, each band comprising a short length of said fabric, said bands being spaced apart</p>	<p>As shown in Figure 4, another aspect of the present invention is to provide protective coverlets 84, or bands, that may be wrapped around hoses or cables 82 at spaced-apart</p>

along the length of said material.	intervals. (p. 7 l., 22-24; Fig. 4.)
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Claim 11	Disclosure of S.N. 10/075,786
11. The protective sleeve of Claim 10 wherein each of said bands is formed as a short length of fabric having opposed longitudinal edges, said opposed longitudinal edges including means for fastening said opposed longitudinal edges together around the length of said material.	Coverlets 84 are formed in the same manner and from the same material as the elongated sheet in Figure 2. p. 7 l., 27-29; Figs. 2, 4. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. As best seen in Figure 2, narrow strips of hook 32 and loop 36 fasteners are affixed to opposed edges 26 and 28. (p. 6 lines 22-25; Fig. 2.)

Claim 12	Disclosure of S.N. 10/075,786
12. The protective sleeve of Claim 11 wherein said means for fastening said opposed longitudinal edges comprises hook and loop material.	Coverlets 84 are formed in the same manner and from the same material as the elongated sheet in Figure 2. p. 7 l., 27-29; Figs. 2, 4. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. As best seen in Figure 2, narrow strips of hook 32 and loop 36 fasteners are affixed to opposed edges 26 and 28. (p. 6 lines 22-25; Fig. 2.)

Claim 13	Disclosure of S.N. 10/075,786
13. The protective sleeve of Claim 1 further including a hood formed of the same fabric as said sleeve and fastened to at least one end of said sleeve for protecting an exposed end of said length of material.	As an accessory to protective cover 20, a separate protective hood 52 is provided. As shown in Figure 3, hood 52 is formed of the same material as cover 20 and is desirably formed from a single piece of material; however, it may be formed from multiple pieces that are sewn together along multiple seams. Hood 52 is intended to protect the exposed ends of cables or hoses when they are not in use to prevent damage to those exposed ends and to prevent infiltration by contaminants. Referring again to Figure 2, hood 52 may be secured to cover 20 with VELCRO® material in a manner similar to the fasteners described hereinabove. (p. 7, l. 7-18; Figs. 2, 3.)

Claim 27	Disclosure of S.N. 10/075,786
27. An abrasion-resistant, cut-resistant, and tear-resistant protective cover system for airports, docks, and construction sites comprising:	The present invention relates to the field of protective coverings, and, more particularly to a protective cover for lengths of material such as ropes, tethers, lanyards, etc. of the type that are

	likely to be subjected to continuous abrasion and/or exposure to undesirable environmental conditions or chemicals (p. 1, lines 8-11). For example, mooring lines used in the maritime industry require frequent replacement due to constant abrasion and exposure. Other tethers and fastening lengths used in construction, on heavy equipment, and any other source of exposure and/or abrasion, will benefit from the protection offered by the protective cover of the present invention (p. 4, lines 10-19). As shown in Figure 1, one aspect of the present invention is directed to a simple, yet effective, abrasion-resistant protective system for lengths of material such as hoses, cables, ropes, etc. of the type used in high abrasion applications, such as the airline industry (Fig. 1; p. 5, lines 7-9).
(a) a length of material selected from the group consisting of electrical cables, hoses, ropes, hydraulic lines, tethers, and lanyards that must be periodically moved or pulled across abrasive surfaces and subjected to chemicals, moisture, and weather conditions; and	The present invention relates to the field of protective coverings, and, more particularly to a protective cover for lengths of material such as ropes, tethers, lanyards, etc. of the type that are likely to be subjected to continuous abrasion and/or exposure to undesirable environmental conditions or chemicals. (p. 1, lines 8-11) The present invention is directed to a simple, yet effective, abrasion-resistant protective system for lengths of material such as hoses, cables, ropes, etc. of the type used in high abrasion applications. (p.2, lines 13-15) For example, mooring lines used in the maritime industry require frequent replacement due to constant abrasion and exposure. (p. 4, lines 10-19)
(b) a protective sleeve having open ends and encasing said length of material and formed of an elongated sheet consisting of a lightweight, woven fabric and a thermoplastic film bonded to at least one side thereof,	The present invention relates to the field of protective coverings, and, more particularly to a protective cover for lengths of material such as ropes, tethers, lanyards, etc. of the type that are likely to be subjected to continuous abrasion and/or exposure to undesirable environmental conditions or chemicals. (p. 1, lines 8-11) Shown generally as 10 in Figure 1, in its simplest form the protective cover comprises a sleeve having an outer surface 12, an inner surface 14, and open ends 15, 17. Protective cover 10 is formed from a singular length of woven fabric with a single layer that is sewn together along longitudinal edges to form a

	seam 16 (Fig. 1; p. 5, lines 7-13). It has been found that a thermoplastic film of polyethylene or ethylene vinyl acetate suitably bonds to fabrics formed from high-performance yarns, including SPECTRA® (p. 6, lines 17-19).
the fabric made substantially of yarns formed primarily of long chain polyethylene fibers having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 20 grams/denier,	In the preferred embodiment, the yarns used to form the woven sheet are formed from long chain polyethylene fibers available from suppliers, such as Allied Signal, under the trademark SPECTRA® (p. 5, lines 17-19).
the yarns having a denier between 400 and 1000,	The warp and fill yarns are desirably in the range of between about 400 and 1,000 denier and the warp and fill picks are in the range of about 30 to 36 yarns per inch each. (p. 5, lines 30-32).
the fabric having a warp and fill density of between 30 and 36 ends per inch, and	
the thermoplastic film selected from the group consisting of polyethylene film and ethylene vinyl acetate,	It has been found that a thermoplastic film of polyethylene or ethylene vinyl acetate suitably bonds to fabrics formed from high-performance yarns, including SPECTRA® (p. 6, lines 17-19).
wherein said protective sleeve not only protects the lengths of material thereunder, but the fabric yarns themselves are resistant to deterioration from chemicals, fuels, as well as being highly resistant to abrasion, and the fabric of the sleeve is moisture-resistant, fuel-resistant, oil-resistant, abrasion-resistant, cut-resistant, tear-resistant, and resistant to heat build-up as a result of relative movement between the sleeve and the length of material.	Fabric so formed from SPECTRA®, for example, has a high level of tear-resistance, abrasion-resistance, cut-and-puncture-resistance, resistance to low temperatures, and resistance to chemicals such as aviation fuel and oils (p. 5, lines 21-23).

Claim 28	Disclosure of S.N. 10/075,786
28. The system of Claim 27 wherein said fabric is formed from yarns containing at least 70 percent long chain polyethylene fibers.	For instance, in applications in which protective cover 20 may be subjected to tensile stresses in the horizontal axis that could create “creep,” or stretching, the fabric may be formed with a blend of yarns comprising up to 305 KEVALR® with SPECTRA® construction. That is, blended yarns comprising up to 30% of the yarn ends being formed entirely from high-strength filaments, would provide an acceptable combination. (p. 6 lines 2-8.)

Claim 29	Disclosure of S.N. 10/075,786
29. The system of Claim 27 wherein said fabric has a weight of between about 5 and 8 ounces per square yard.	The woven fabric sheet is a single layer with a preferred weight between about 5 and 8 ounces per square yard. (p. 5, l. 28-29.)

Claim 34	Disclosure of S.N. 10/075,786
<p>34. The system of Claim 27 wherein said sleeve is formed as an elongated sheet having opposed longitudinal edges, said opposed longitudinal edges including means for releasably attaching said opposed longitudinal edges together around the length of said material.</p>	<p>Means for fastening the length of fabric and holding it in place are affixed along the opposed longitudinal edges of the fabric length. The fasteners preferred for this application are hook and loop strips that allow the sleeve to be completely closed along its entire length. Hook and loop fastening strips are most commonly available under the trademark VELCRO®. To ensure extra holding capability, either multiple strips may be used or wider strips may be affixed to the edges of the length of fabric. Alternatively, other fasteners such as snaps, ties, and the like could be used. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. These include, but are not limited to adhesives, bands, snaps, buttons, zippers, etc. (p. 3, line 20, 21 and 26-31; p. 6 line 23-24; p. 7 line 2-3.).</p>

Claim 35	Disclosure of S.N. 10/075,786
<p>35. The system of Claim 34 further including means for securing said open ends of the sleeve to said length of material.</p>	<p>Means for fastening the length of fabric and holding it in place are affixed along the opposed longitudinal edges of the fabric length. The fasteners preferred for this application are hook and loop strips that allow the sleeve to be completely closed along its entire length. Hook and loop fastening strips are most commonly available under the trademark VELCRO®. To ensure extra holding capability, either multiple strips may be used or wider strips may be affixed to the edges of the length of fabric. Alternatively, other fasteners such as snaps, ties, and the like could be used. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. These include, but are not limited to adhesives, bands, snaps, buttons, zippers, etc. (p. 3, line 20, 21 and 26-31; p. 6 line 23-24; p. 7 line 2-3.).</p>

Claim 36	Disclosure of S.N. 10/075,786
<p>36. The system of Claim 27 wherein said sleeve is formed as a plurality of bands, each band comprising a short length of said fabric,</p>	<p>As shown in Figure 4, another aspect of the present invention is to provide protective coverlets 84, or bands, that may be wrapped</p>

said bands being spaced apart along the length of a material to be protected.	around hoses or cables 82 at spaced-apart intervals. (p. 7 l., 22-24; Fig. 4.)
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Claim 37	Disclosure of S.N. 10/075,786
37. The system of Claim 36 wherein each of said bands is formed as a short length of fabric having opposed longitudinal edges, said opposed longitudinal edges including means for fastening said opposed longitudinal edges together around the length of a material to be protected.	Coverlets 84 are formed in the same manner and from the same material as the elongated sheet in Figure 2. p. 7 l., 27-29; Figs. 2, 4. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. As best seen in Figure 2, narrow strips of hook 32 and loop 36 fasteners are affixed to opposed edges 26 and 28. (p. 6 lines 22-25; Fig. 2.)

Claim 38	Disclosure of S.N. 10/075,786
38. The system of Claim 37 wherein said means for fastening said opposed longitudinal edges comprises hook and loop material.	Coverlets 84 are formed in the same manner and from the same material as the elongated sheet in Figure 2. p. 7 l., 27-29; Figs. 2, 4. To enable protective cover 20 to be fitted and secured around a cable or hose, fasteners are provided along the opposed longitudinal edges 26, 28. As best seen in Figure 2, narrow strips of hook 32 and loop 36 fasteners are affixed to opposed edges 26 and 28. (p. 6 lines 22-25; Fig. 2.)

Claim 39	Disclosure of S.N. 10/075,786
39. The system of Claim 27 further including a hood formed of the same fabric as said sleeve and fastened to at least one end of said sleeve for protecting an exposed end of said length of material.	As an accessory to protective cover 20, a separate protective hood 52 is provided. As shown in Figure 3, hood 52 is formed of the same material as cover 20 and is desirably formed from a single piece of material; however, it may be formed from multiple pieces that are sewn together along multiple seams. Hood 52 is intended to protect the exposed ends of cables or hoses when they are not in use to prevent damage to those exposed ends and to prevent infiltration by contaminants. Referring again to Figure 2, hood 52 may be secured to cover 20 with VELCRO® material in a manner similar to the fasteners described hereinabove. (p. 7, l. 7-18; Figs. 2, 3.)

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. Whether claims 1-3, 8-9, 27-29 and 34-35 are unpatentable over U.S. Patent No. 5,300,337 to *Andrieu et al. (Andrieu)* in view of U.S. Patent No. 5,393,682 to *Holland et al. (Holland)*, and U.S. Patent No. 5,965,223 *Andrews et al. (Andrews)*, under 35 U.S.C § 103(a);
- B. Whether claims 10-12 and 36-38 are unpatentable over *Andrieu* in view of *Holland*, in view of *Andrews*, and U.S. Patent No. 4,891,256 *Kite III et al. (Kite III)*, under 35 U.S.C. §103(a);
- C. Whether claims 13 and 39 are unpatentable under *Andrieu* in view of *Holland* in view of *Andrews*, and U.S. Patent No. 5,070,597 *Holt et al.*, under 35 U.S.C. §103(a); and
- D. Whether claims 1 and 17 are unpatentable under 35 U.S.C § 1122, 2nd paragraph, as being indefinite for failing to point and particularly claim the invention.¹

VII. ARGUMENT

A. The Invention is a New Product for Airports, Docks and Construction Sites

The invention is directed a protective covering for fuel hoses, electrical cables, hydraulic hoses, ropes, tethers, lanyards, and the like, found in relatively harsh environments such as airports, docks and construction sites. In particular, the hoses, ropes, cables and the like, all of which are very expensive (\$15 per linear foot and up), are moved back and forth across abrasive surfaces and exposed to moisture, chemicals, oil and gasoline. As a result, they tend to prematurely deteriorate and/or wear out. The protective cover is formed of an elongated sheet consisting of a woven fabric having a specific construction (e.g., 30 to 36 ends per inch) formed with yarns formed primarily of long chain polyethylene fibers having a denier between 400 and 1000. The protective cover also includes a thermoplastic film of either polyethylene or ethylene

¹The Office Action mailed on August 4, 2009 rejected claims 1 and 17 under 35 U.S.C § 11, 2nd paragraph. The amendment dated January 7, 2010 amended claims 1 and 17 to address this rejection. This amendment was entered by the Advisory Action dated January 21, 2010. The advisory action, however, did not specifically withdraw this rejection. Appellants therefore include this ground of rejection in this appeal.

vinyl acetate bonded to at least one side of the woven fabric to improve the fluid resistance of the cover.

The Examiner's rejections of the claims pending in this application should be reversed for several reasons, the most important of which is that no *prima facie* cases of obviousness can be sustained based on all of the evidence on the record in this application. First the combination of *Andrieu*, *Holland*, and *Andrews* still do not teach all of the claim limitations. Secondly, the combination of *Andrieu*, *Holland*, and *Andrews* would not and could not be successfully combined by a person of ordinary skill in the art at the time the invention was made.

B. The Prior Art is Different

U.S. Patent No. 5,300,337 to *Andrieu*

Andrieu does not disclose or suggest several limitations of the claims. The *Andrieu* cover is intended to protect wires and the like in such environments as automobile engine compartments. First, *Andrieu* does not disclose or suggest a protective sleeve for use in environments where "lengths of material are moved back and forth across abrasive surfaces and subjected to abrasion, chemicals, moisture, and weather extremes." The Examiner misreads *Andrieu* with respect to moisture resistance and suitable in weather extremes. Nowhere in *Andrieu* is moisture resistance recognized as desirable, needed, or helpful in accomplishing the purpose *Andrieu* sets forth-a reliable, low cost closure as will be discussed below. In addition, the Examiner incorrectly states at page 3 of the August 4 Final Rejection that "weather extremes" and "heat" are equivalent. The Examiner also states at page 13 of the August 4 Final Rejection that *Andrieu* "clearly recognizes the problem of wires and cables needing abrasion and weather protection as claimed." (emphasis added). The evidence in *Andrieu* (or in entire record for that matter) does not support these statements. Heat describes only a subset of "weather extremes" and does not characterize the entire range of conditions, or the fluctuation between extremes (e.g., between hot-cold, wet-dry, etc.) in which the claimed protective cover would be effective. Applicants submit that there simply is no disclosure or recognition in *Andrieu* of the problems experienced by such lengths of material in the environment in places like airports, docks and construction sites (moisture, chemicals, abrasion, etc.).

Second, *Andrieu* does not disclose, teach or suggest a protective cover formed of a “fabric being made substantially of yarns formed primarily of long chain polyethylene fibers having a tensile modulus equal to or greater than 150 grams/denier, and a tenacity equal to or greater than 20 grams/denier, the yarns having a denier between 400 and 1000, the fabric having a warp and fill density of between 30 and 36 ends per inch.” Nor does *Andrieu* describe any use of such high strength yarns for that matter. The Examiner incorrectly states at page 3 of the August 4 Final Rejection that the PET monofilament yarns are high strength yarns. There is no evidence in *Andrieu*, or anywhere else in the record provided by the Examiner, that a PET monofilament yarn would be considered a “high strength yarn.” In fact it would not.

Third, *Andrieu* does not teach or suggest a protective sleeve consisting of a woven, lightweight fabric with a thermoplastic film selected from the group consisting of polyethylene and ethylene vinyl acetate and bonded to at least one side thereof.

U.S Patent No. 5,393,682 to *Holland*

Holland is directed to flexible cargo curtains for covering the end openings of cargo containers, luggage trailers, and truck openings. They take the place of rigid doors. The cargo curtains are formed of ultra-high molecular weight polyethylene yarns. *Holland* does not disclose, teach or suggest the use of such yarns with a thermoplastic film. Further, there is no recognition or suggestion that they would provide a superior cable or hose cover which would hold up even when dragged repeatedly and continuously across an abrasive surface. Nor is there any recognition that the yarns alone provide sufficient protection against abrasion, chemicals, moisture, and weather extremes.

U.S. Patent No. 9, 969,223 to *Andrews*

Andrews is directed to a knit cut-resistant fabric, primarily for apparel, but may also be used for other products. *Andrews* does not disclose, teach or suggest woven fabric with a thermoplastic film bonded to at least one side thereof and being formed from EVA or PE. *Andrews* is essentially a multilayer knitted composite fabric. *Andrews* teaches that a single, one step process is used to plate one or more yarns (layers) together. The Examiner states at page 7 of the August 4 Final Rejection that a secondary layer of a thermoplastic material should be read

as a thermoplastic film that may be EVA or PE. But the secondary layer of *Andrews* could not be made to be “bonded” to any other fabric as claimed.

Andrews, rather, discloses only that the secondary layer is commercially knit into the fabric (*Andrews* at Col. 3, lines 46-59) and states:

“In another preferred embodiment of the present invention, a secondary layer is added to the inner and outer layer framework. Similar to the two-layer fabric, the three layers are continuously formed in a one-step manufacturing process which plates the layers together. In one embodiment, the secondary layer is positioned below the inner primary layer. As a result, when the fabric is formed into a garment, the secondary layer will come into contact with the wearer’s skin.” (emphasis added) (*Andrews* at Col. 3 line 17-26).

Thus, *Andrews* discloses knitting multiple layers together in a single knitting operation. *Andrews* does not disclose, teach or suggest a thermoplastic film that is bonded to a woven fabric of ultra high molecular weight polyethylene yarns the film being of EVA or PE and no more, as the phrase “consisting of” requires in claims 1 and 27 (as discussed below).

C. The Examiner has repeatedly misread the *Andrieu* Patent

At the outset the Examiner has continuously misread and misinterpreted *Andrieu* as being a woven single layer fabric “being made substantially of high strength yarns 11.” While yarns 11 are polyester monofilaments, the primary part of *Andrieu*’s fabric are yarns 13, which are referred to as “bulky multifilament yarns,” as discussed above. *Andrieu* does not identify the material from which these yarns are made, and therefore they cannot fairly be described as “high strength.” Accordingly, the Examiner’s statement at page 3 of the August 4 Final Rejection is incorrect.

Further, the Examiner appears to have disregarded *Andrieu*’s purpose. *Andrieu* is entitled “Wraparound Closure Device” and is directed to a closure for a protective sleeve, not to the makeup or purpose of the cover itself. The stated purpose of *Andrieu* is to provide a “simple and reliable, relatively low cost system, for closure of a sleeve which will accommodate variations in the diameter of a bundle of elongated articles, such as cables having connectors intermediate their length, while allowing for cable breakouts at points where a cable is required to be connected to a particular instrument or item of equipment.” (emphasis added) (*Andrieu* at Col.

1, lines 43-54). The bulk of specification in *Andrieu* is concerned with how this closure is formed. The Examiner has either ignored this aspect of *Andrieu* or has misread *Andrieu's* teachings regarding its purpose.

D. Claims 1-3 and 8-9 are not unpatentable over U.S. Patent No. 5,300,337 to *Andrieu et al.* (*Andrieu*) in view of U.S. Patent No. 5,393,682 to *Holland et al.* (*Holland*), and U.S. Patent No. 5,965,223 *Andrews et al.* (*Andrews*), under 35 U.S.C § 103(a).

The Examiner has failed to establish a *prima facie* case that claim 1 is obvious for several reasons. First, the claims clearly require more than what the prior art teaches or suggests. Second, there is no evidence of any motivation to combine *Andrieu*, *Holland*, and *Andrews* in such a manner as to make claim 1 obvious. Third, there is evidence in each reference that cast serious doubt on whether the person of ordinary skill in the art could successfully combine or modify *Andrieu* with *Holland* and *Andrews* without destroying the purpose of *Andrieu*. Given all this, a person of ordinary skill in art would not blindly combine *Andrieu* with *Holland* and *Andrews*. Each of these reasons will be discussed in detail below.

1. *Andrieu*, *Holland* and *Andrews* do not teach all of the claim limitations

As discussed above, the claims require more than what the prior art actually teaches. In particular, there is no disclosure, teaching or suggestion of the following limitations of claim 1:

- a protective sleeve for lengths of material... in which said lengths of material are moved back and forth across abrasive surfaces and subjected to abrasion, chemicals, moisture, and weather extremes...
- consisting of a woven, lightweight fabric, with a thermoplastic film bonded to at least one side thereof, the thermoplastic film selected from the group consisting of polyethylene and ethylene vinyl acetate...

Because *Andrieu*, *Holland*, and *Andrews*, viewed as whole, does not teach or suggest each claim limitation, the Examiner has not established a *prima facie* case that claim 1 is obvious.

2. The Evidence on the Record Shows That Hindsight Could be the Only Motivation to Combine *Andrieu*, *Holland* and *Andrews*.

Examiner has produced simply no evidence of any motivation to combine *Andrieu* with *Holland* and *Andrews* in such a manner as to make claim 1 obvious. Only hindsight, with the aid of the claims and specification of this application, supplies the missing claim limitations and inferences necessary to support a *prima facie* case that claim 1 is obvious to a person of ordinary skill in the art at the time the invention was made.

First, the Examiner has not presented sufficient evidence that a person of ordinary skill in the art could predictably combine or modify *Andrieu*, *Holland*, and *Andrews* to arrive at the claimed invention. The Examiner has misread *Andrieu* as discussed above. In short, *Andrieu* is not “substantially formed of high strength yarns,” nor is *Andrieu* 100-% polyester, or even 70-% polyester as stated at page 3 of the August 4 Final Rejection. *Andrieu*’s warp coverage area is at most 60 % in the main portion of the sleeve, and 12 % along the marginal edge. Further, *Andrieu* is not moisture, oil or chemical resistant.

Claim 1 requires a thermoplastic film that makes the protective cover moisture, oil, and chemical resistant. Nowhere does *Andrieu* mention even a need or desire for moisture resistance, fuel or oil resistance, or chemical resistance. With this knowledge of *Andrieu*, why would a person of ordinary skill consider a moisture resistant, chemical resistant, or oil-resistant film? A person of ordinary skill in the art would not, because *Andrieu* made his protective sleeve with spacings between the warp monofilament yarns to yield a relatively open structure, and was not at all concerned with the resistance that a thermoplastic film bonded to a woven fabric would provide against moisture, oil, and other chemicals. Further, a person of ordinary skill armed with all of the knowledge of *Andrieu* surely would understand that adding a film to *Andrieu* would not improve or contribute to the stated purpose of *Andrieu* - a reliable closure. This is because the film on the *Andrieu*’s sleeve would work against the closure means, not with it.

3. Combining *Andrieu* with *Holland* destroys the purpose of *Andrieu*

The Federal Circuit has also held that “if the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Further, a *prima facie* case of obviousness cannot be established if the combined reference would make a device inoperative. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354, 60 USPQ2d 1001, 1010 (Fed. Cir. 2001) (if references taken in

combination would produce a “seemingly inoperative device,” such references teach away from the combination and thus cannot serve as predicates for a *prima facie* case of obviousness). In this instance, *Andrieu* modified with *Holland* and *Andrews* renders *Andrieu* unsatisfactory for its intended purpose – a reliable closure. A person of ordinary skill would also understand that combining *Andrieu* with *Holland* would destroy the purpose of *Andrieu*, and *Andrews* would not cure the deficiencies that result in this combination.

Andrieu’s stated purpose is to provide a “simple and reliable, relatively low cost system, for closure of a sleeve.” (*Andrews* at Col. 1, lines 47-49). A combination or modification of references that destroys the ability of *Andrieu* to form an economical, reliable, closure is improper. A critical review of the Examiner’s analysis, and all of the evidence on record, as described below, reveals that in fact the Examiner presents a modification that makes *Andrieu* “unsatisfactory for its intended purpose.” *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Andrieu accomplishes its purpose with a closure means comprising “multifilament, bulky yarns interlaced in the sleeving material” along one marginal edge of the sleeve that engages “VELCRO brand hook tape” along the other marginal edge of the sleeve. See *Andrieu*’s Abstract. *Andrieu*’s closure means, therefore, requires specific types of warp and fill yarns arranged in a specific fabric construction to accomplish its purpose. For example, *Andrieu* requires warp yarns that are monofilament yarns. (*Andrieu* at Col. 1, lines 58-61; Col. 2, lines 8-12). *Andrieu*’s’ warp yarns are engineered plastic materials that are preferably polyester, and have a diameter between 8 to 15 mils. (*Andrieu* at Col. 2, lines 44-52).

Andrieu’s filling yarns 13 are “bulky multifilament yarns” formed of an undisclosed material and used to interengage with the VELCRO brand hook type fasteners of the closure, and are critical to the effective closure of *Andrieu*. (*Andrieu* at Col. 1, line 68-Col. 2, line 2) Nowhere are they described as high strength or even polyester. *Andrieu*’s’ fill yarns have a denier between about 600-2500 with 70-450 filaments. (*Andrieu* at Col. 3, lines 62-67). *Andrieu* describes that the “individual filaments in the ‘loops’ of bulky yarn at the extreme marginal edge of the sleeve are not restricted or confined, and have a tendency to readily separate individually and in small bundles or subgroups.” (*Andrieu* at Col. 4, lines 15-20). Further, *Andrieu* states that “more adherence is achieved between the hooks and the individual filaments of the [bulky fill] yarn as the yarn becomes more bulky and as more yarn surface area is exposed along the marginal edge.” (*Andrieu* at Col. 5, lines 16-20). A person of ordinary skill in the art would

appreciate that “bulky multifilament yarns” are synonymous with “textured yarns.” In fact, the definition of a “bulked yarn” in the Complete Textile Glossary © 2001 at p. 159, refers the reader to the definition of “textured yarns.” The phrase “texturing” is defined as “the process of crimping, imparting random loops, or otherwise modifying continuous filament yarn to increase cover, resilience, abrasion resistance, warmth, insulation, and moisture absorption or to provide a different surface texture.” Complete Textile Glossary © 2001 p. 159. Thus, a bulky multifilament yarn is likely “crimped” and has “random loops imparted” to facilitate engaging the VELCRO brand hooks on the other marginal edge of the sleeve. Only a textured or bulky yarn would “expose individual filaments” to be received by the VELCRO brand hooks, thus providing an effective closure as described in *Andrieu*.

Andrieu’s fabric construction cooperates with the specific types of warp and fills yarns used to form the “reliable” closure for a sleeve. *Andrieu* discloses that the woven fabric may have a warp density of about 40 monofilaments per inch, and warp density along the marginal edge of about 8 monofilaments per inch. (*Andrieu* at Col. 4, lines 2-5). Considering the disclosure of monofilament diameters (8 mil to 15 mils), this fabric would have warp coverage area² of only between 32% and 62% in “the 40 epi section,” and a warp coverage area between 6.4% and 12 % in the “less dense marginal edge” which has a 8 epi. Obviously this is not moisture resistant. As *Andrieu* reiterates, the less dense marginal edge permits the hook type fasteners of the closure to better “interengage” the loops of the bulky multi-filament yarns.

As clearly set forth above, bulky-multifilament yarns are required for the closure *Andrieu* is seeking. Just as clearly *Holland* does not disclose, teach or suggest bulky multifilament yarns. To modify *Andrieu*’s closure device by using *Holland*’s ultra high molecular weight polyethylene (UWMWPE) yarns (i.e., “modified *Andrieu*”) for *Andrieu*’s warp 11 and fill 13, as referred at page 6 of the August 4 Final Rejection, would not yield a marginal edge (*Andrieu* at Col. 1, lines 61-68) that exposes bulky multifilament yarns, because *modified Andrieu* would not have the bulky multifilament yarns *Andrieu* clearly needs for the closure. The Examiner’s *modified Andrieu* would provide no place for the “hook-type fasteners” to “interengage the fibers.... for closure of the sleeve.” (Col. 1, 1. 68-Col. 2, line 2). Thus, *modified Andrieu* would not have the monofilament warp or the bulky multifilament yarn that appear so critical for

² Warp coverage area (W_{CA}) was calculated using the equation:
 $W_{CA} = [y_{dia} \times (epi)] \times 100$,
 Where y_{dia} is the yarn diameter epi is and warp density in ends per inch.

Andrieu's closure operation. Further, there is nothing in *Holland* to suggest that UHMWPE yarns are suitable or even a good replacement for a PET (polyester) monofilament and a bulky multi-filament fill that would yield a suitable closure.

Another stated purpose of *Andrieu* is to have a relatively low cost and reliable protective cover. Modifying *Andrieu* with *Holland* to form a protective sleeve "consisting of a woven, lightweight fabric, with a thermoplastic film bonded to at least one side thereof, the fabric being made substantially of yarns formed primarily of long chain polyethylene fibers ..." is completely inconsistent with providing a low cost protective cover. For example, the polyester cover of *Andrieu* costs \$6.45 per foot, where the covers of the claimed invention cost about \$26.00 per foot. See Supplemental Declaration pages 4 and 5. Use of UHMWPE and a thermoplastic film on one or both sides of the fabric is thus more expensive, and could not provide a reliable closure without further modification, such as providing VELCRO brand loops along one marginal edge (as disclosed in this specification). Thus, what the Examiner is asserting is not just the simple replacement of one fabric with another, it is the replacement of one fabric with more expensive UHMWPE, the addition of one or two thermoplastic films (more expense), and the addition of a new closure system (still more expense). This would not be economical. Further, this level of modification would only be pursued by a person of ordinary skill having the knowledge that the instant application and claims contributes to the art. Thus, the combination the Examiner is proposing would make *Andrieu* unsatisfactory for its intended purpose.

4. Given the Purpose of *Andrieu*, and the Inadequacy of Combining *Holland* with *Andrews* for That Purpose, a Person of Ordinary Skill in Art Would Not Further Combine *Andrieu* and *Holland* with *Andrews*

Andrieu and *Holland* do not suggest that the knitting technique of *Andrews* would improve the barrier properties of the cover, or even improve upon the *Andrieu* closure. As discussed above, nothing in *Andrieu* suggests *Holland* would provide an effective protective sleeve "consisting of a woven fabric formed substantially of ultrahigh molecular weight polyethylene yarns with a thermoplastic film bonded to at least one side thereof." Further, nothing in *Andrieu* or *Holland* would reasonably lead a person of ordinary skill in the art to conclude that the knitting process of *Andrews* would provide improved moisture and chemical resistance that the claims require, or in manner the claims requires it. This is especially true when *Andrews* is read as a whole, as is required in any obvious analysis. *W.L. Gore &*

Associates, Inc. v. Garlock, Inc., 721 F. 2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 834 (1984).

The asserted portion of *Andrews*, that the Examiner states teaches a film of EVA or PE bonded to a fabric, is taken out of context. The asserted teachings of EVA and PE are in the context of manufacturing in a one-step knitting process, and not a weaving/laminating process. (see Abstract; Col. 2, lines 26-30, 33-35, 48-50; Col. 3, lines 19-23, 47-59; Col. 3, lines 66 – Col. 4, line 2; Col. 5 lines 45-48, 59-65; Col. 6, lines 7-10, 25-28; Col. 6, lines 56-63 on *Andrews*). *Andrews* thus repeatedly refers to knitting by plating in a one-step process. Plating is a term referring to a knitting process or a knit structure, and is not applicable to woven fabrics, or to woven fabric-film laminating. Plating, rather, is defined as “a loop composed of two or more yarns, often with differing physical properties, each having been separately supplied through its own guide or guide hole to the needle hook in order to influence its respective position relative to the surface (technical face) of the fabric.” P.46, *Knitting Technology*, 2nd Edition, Spencer, David J., 1989 ©. “Loops” and “needle” are not terms used in weaving, operation or laminating. Plating, thus, could not be considered similar to, or a suggestion for “bonding” a woven fabric and film together. Further, *Andrews* teaches seamless tubular knitting, and while tubular items may be formed, how would a person of ordinary skill use a seamless tube of knitted fabric to make a wraparound closure as in *Andrieu*, or a woven protective sleeve for lengths of material as in claim 1; or having a fastener as in claim 8 and 9.

A person of ordinary skill in the art surely would know the difference between weaving and knitting and could appreciate the limited applicability that the knitted-plated layers of *Andrews* would have on modifying a woven fabric to yield a woven protective cover as is now claimed. In short, *Andrieu* and *Holland* would not suggest a line of development that modifies the knitted configuration of *Andrews*, to arrive at a protective sleeve that consists only of a UHWMPE woven fabric with thermoplastic film bonded thereto as claimed.

Given all of the teachings of this art, a person of ordinary skill would thus not blindly combine or modify isolated teachings of *Andrieu*, *Holland* and *Andrews* when evidence suggests that the modification renders *Andrieu* inadequate for its stated purpose and *Andrews* suggests no cure for that deficiency. *KSR* stated that “[a] person of ordinary skill in the art is also a person of ordinary creativity, not an automaton.” *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385, 1397 (2007). *KSR* also stated “in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* Because the

person of ordinary skill is “not an automaton,” that person would not combine isolated teachings of the prior art that do not in fact “fit together like pieces of a puzzle” as is the case with the combination of *Andrieu*, *Holland* and *Andrews*. In this case, the person of ordinary skill would appreciate that modifying *Andrieu* with *Holland* would destroy the purpose of *Andrieu*, and that *Andrews* adds nothing that improves upon the shortcomings of “*modified Andrieu*.” Only if a person of ordinary skill were an “automaton” would this combination be made. We know from *KSR* this is not the case. A person of ordinary skill in the art would not blindly look at *Andrieu*, identify only that UHWMPE is suitable for a cargo curtain from *Holland*, and then turn to the knitted fabric reference of *Andrews* for further guidance on what line of development to pursue for a woven-film protective cover used in airports, docks and construction sites. The teachings of *Andrieu*, *Holland*, and *Andrews* simply do not fit “together like pieces of a puzzle.”

Finally, the Examiner argues that the appellant improperly attacks single references. Appellant disagrees. The Examiner uses this line of cases simply to avoid the careful analysis that 35 U.S.C § 103 (a), and Supreme Court and Federal Circuit precedent regarding obviousness requires. In this case, the Examiner has not carefully considered the claim as a whole. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). Further, the Examiner has not considered the prior art in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *Anderson v. Pella Corp.*, 300 Fed. App. 893, at 898 (Fed. Cir. 2008) (teaching for or against combining and modifying prior art references should be considered).

E. Claims 27-29 and 34-35 are not unpatentable over U.S. Patent No. 5,300,337 to *Andrieu et al. (Andrieu)* in view of U.S. Patent No. 5,393,682 to *Holland et al. (Holland)*, and U.S. Patent No. 5,965,223 *Andrews et al. (Andrews)*, under 35 U.S.C § 103(a)

For all the reasons set forth above, as to why Claim 1 is not obvious, Claim 27 is also not obvious. Further Claim 27 is not obvious to a person of ordinary skill in the art at the time of invention was made because the prior art does not teach other of the claim limitations. Further, as discussed above, the prior art cannot be modified or combined in such a way to teach or suggest all of the limitations of the claim.

1. The Examiner has Not Established a Prima Facie Case of Obviousness

Claim 27 is directed to a system, that requires, and which the prior art does not teach, suggest or recognize:

- (1) a length of material selected from the group consisting of electrical cables, hoses, ropes, hydraulic lines, tethers, and lanyards that must be periodically moved or pulled across abrasive surfaces and subjected to chemicals, moisture, and weather conditions; and
- (2) a protective sleeve having open ends and encasing said length of material and formed of an elongated sheet consisting of a lightweight, woven fabric and a thermoplastic film bonded to at least one side thereof, (emphasis added)

In addition to the protective sleeve, claim 27 now specifically and positively adds the limitation of the types of lengths of materials encased therein. *Andrieu, Holland* and *Andrews* does not disclose, teach or suggest lengths of material that “must be periodically moved or pulled across abrasive surfaces” Clearly this limitation requires lengths of material that are capable of movement over abrasive surfaces.

Andrieu at most describes protection from “moving machinery parts or the like” for automotive uses (*Andrieu* at Col. 1, l. 16-20). *Andrieu* describes the closure that provides breakout points where a cable is required to be connected to a particular instrument or item of equipment” (*Andrieu* at Col. 1, 52-55). Further, *Andrieu*’s discussion of the prior art refers only to prior protective cables used in automotive application, such as an “automobile or truck engine compartment.” (*Andrieu* at Col. 1, l. 30-35). Further, in discussing the warp monofilaments for the closure, *Andrieu* states:

It is especially preferred to use polyester as the monofilament material as polyester is relatively inexpensive and sufficiently impervious to the changes in temperature found for most automotive applications...For typical sleeves utilized for bundling wires or tubing in automotive applications the monofilaments range in diameter from about 8 to about 15 mils. (emphasis added) *Andrieu* at Col. 3, l. 44-51.

Andrieu further states that “[s]leeves so formed are relatively inexpensive to fabricate. The closure means provided resists separation under conditions of stress and vibration, making them suitable for automotive applications as well as applications in other forms of moving

machinery where it is necessary to bundle cables and other elongated flexible articles.” (*Andrieu* at Col. 5, l. 27-33).

These portions show that the *Andrieu*’s protective sleeve is used for automotive applications, and are likely suitable for engine compartment use and the like. This evidence does not suggest that a protective sleeve of *Andrieu* would or could be moved, rather, the protective sleeve would be stationary if connected to equipment. This is clear evidence that *Andrieu* does not recognize or suggest, materials suitable for protecting lengths of material that must be “moved or pulled across abrasive surfaces.”

Further, nothing in the prior art suggests that the claimed “lengths of material” would be subjected to “chemicals, moisture, and weather conditions.” Even as to weather, at least one definition of weather is “the state of the atmosphere with respect to wind, temperature, cloudiness, moisture, pressure, etc.” P.712 *The American Heritage Dictionary*, 3rd ed. 1992. This encompasses more than just mere heat (as in *Andrieu*). The prior art therefore, does not recognize a system that includes a claimed protective cover which provides superior protection to lengths of material against all sorts of weather conditions, not just isolated components of weather like heat. The Examiner improperly disregards this evidence and summarily concludes at page 18 of the August 4 Final Rejection that the prior art would in fact provide “weather protection.”

Further, as described above with respect to claim 1, the Examiner is asserting that a person of ordinary skill would blindly add expense to *Andrieu* by using UHMWPE, a thermoplastic film bonded thereto, and a new closure (that using UHMWPE in the warp and fill would destroy), with the full knowledge that *Andrieu* desires low cost closures.

For all the reasons discussed above that claim 1 is patentable, claim 27 is also patentable.

F. Claims 10-12 and 36-38 are not unpatentable over *Andrieu* in view of *Holland*, in view of *Andrews* and U.S. Patent No. 4,891,256 *Kite III* et al. (*Kite III*), under 35 U.S.C. §103(a)

Claims 10-12 depend from claim 1 and claims 36-38 depend from claim 27. For the same reasons that the claim 1 and 27 are patentable over the prior art, claims 10-12 and 36-38 are patentable over the prior art. Thus, the rejection of claim claims 10-12 and 36-38 must be reversed.

G. Claims 13 and 39 are not unpatentable under *Andrieu* in view of *Holland* in view of *Andrews*, and U.S. Patent No. 5,070,597 *Holt et al.*, under 35 U.S.C. §103(a)

Claims 13 depends from claim 1 and claims 39 depends from claim 27. For the same reasons that claim 1 and 27 are patentable over the prior art, claims 13 and 19 are patentable over the prior art. Thus, the rejection of claim 13 and 39 must be reversed.

H. Claims 1 and 27 are not unpatentable under 35 U.S.C § 112, 2nd paragraph, as being indefinite for failing to point and particularly claim the invention

The Office Action mailed on August 4, 2009 rejected claims 1 and 27 under 35 U.S.C § 112, 2nd paragraph. The amendment dated January 7, 2010 amended claims 1 and 27 to address this rejection. This amendment was entered by the Advisory Action dated January 21, 2010. Appellants believe the amendments overcome this rejection. If the Examiner does not withdraw the rejection prior to any decision on this appeal, appellants request this rejection be reversed.

I. Examiner Comments Regarding Appeals is Irrelevant

The Examiner states at page 17 of the August 4 Final rejection that the “board has been clear that one of ordinary skill in the art would render the [SIC] the claimed invention obvious.” The Examiner also states at page 18 of the August 4 Final Rejection that that “predictability, cost, and the hindsight arguments....have also been rebutted by the Board of Patent Appeals.” The Board of patent Appeals and Interferences, however, has not considered the claims now pending and on appeal. Nor has the Board considered Applicant’s arguments set forth above and the inadequacy of the Examiner’s thin evidence of un-patentability of these now pending claims.

CONCLUSION

For the foregoing reasons, the subject matter of the appealed claims would not have been obvious to one of ordinary skill in the art over the combination of references applied by the Examiner in the final rejection. It is therefore respectfully requested that the final rejection of claims 1-3, 8-13, 27-29 and 34-39 be reversed.

The Commissioner is hereby authorized to charge any fees that may be required for the timely consideration of this Appeal Brief to Deposit Account No. 09-0528.

Respectfully submitted,



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Date: March 3, 2010

CLAIMS APPENDIX

1. A protective sleeve for lengths of material such as electrical cable, hoses, ropes, hydraulic lines, tethers, and lanyards used in environments such as airports, docks, and construction sites in which said lengths of material are moved back and forth across abrasive surfaces and subjected to abrasion, chemicals, moisture, and weather extremes,

said protective sleeve encasing said length of material, having open ends and formed of an elongated sheet consisting of a woven, lightweight fabric, with a thermoplastic film bonded to at least one side thereof,

the fabric being made substantially of yarns formed primarily of long chain polyethylene fibers having a tensile modulus equal to or greater than 150 grams/denier, and a tenacity equal to or greater than 20 grams/denier,

the yarns having a denier between 400 and 1000,

the fabric having a warp and fill density of between 30 and 36 ends per inch, and

the thermoplastic film selected from the group consisting of polyethylene and ethylene vinyl acetate

wherein the protective sleeve not only protects the lengths of material thereunder, but the fabric yarns themselves are resistant to deterioration from chemicals, fuels, as well as being highly resistant to abrasion, cuts, and the fabric of the sleeve is resistant to heat build-up as a result of relative movement between the sleeve and the length of material.

2. The protective sleeve of Claim 1 wherein said fabric is formed from yarns containing at least 70 percent high performance yarns long chain polyethylene fibers.

3. The protective sleeve of Claim 1 wherein said fabric has a weight of between about 5 and 8 ounces per square yard.

8. The protective sleeve of Claim 1 wherein said sleeve is formed as an elongated sheet having opposed longitudinal edges, said opposed longitudinal edges including means releasably attaching said opposed longitudinal edges together around the length of said material.

9. The protective sleeve of Claim 8 wherein said means for fastening said opposed longitudinal edges comprises hook and loop material.
10. The protective sleeve of Claim 1 wherein said sleeve is formed as a plurality of bands, each band comprising a short length of said fabric, said bands being spaced apart along the length of said material .
11. The protective sleeve of Claim 10 wherein each of said bands is formed as a short length of fabric having opposed longitudinal edges, said opposed longitudinal edges including means for fastening said opposed longitudinal edges together around the length of said material.
12. The protective sleeve of Claim 11 wherein said means for fastening said opposed longitudinal edges comprises hook and loop material.
13. The protective sleeve of Claim 1 further including a hood formed of the same fabric as said sleeve and fastened to at least one end of said sleeve for protecting an exposed end of said length of material.

27. An abrasion-resistant, cut-resistant, and tear-resistant protective cover system for airports, docks, and construction sites comprising:

(a) a length of material selected from the group consisting of electrical cables, hoses, ropes, hydraulic lines, tethers, and lanyards that must be periodically moved or pulled across abrasive surfaces and subjected to chemicals, moisture, and weather conditions; and

(b) a protective sleeve having open ends and encasing said length of material and formed of an elongated sheet consisting of a lightweight, woven fabric and a thermoplastic film bonded to at least one side thereof,

the fabric made substantially of yarns formed primarily of long chain polyethylene fibers having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 20 grams/denier,

the yarns having a denier between 400 and 1000,

the fabric having a warp and fill density of between 30 and 36 ends per inch, and the thermoplastic film selected from the group consisting of polyethylene film and ethylene vinyl acetate,

wherein said protective sleeve not only protects the lengths of material thereunder, but the fabric yarns themselves are resistant to deterioration from chemicals, fuels, as well as being highly resistant to abrasion, and the fabric of the sleeve is moisture-resistant, fuel-resistant, oil-resistant, abrasion-resistant, cut-resistant, tear-resistant, and resistant to heat build-up as a result of relative movement between the sleeve and the length of material.

28. The system of Claim 27 wherein said fabric is formed from yarns containing at least 70 percent long chain polyethylene fibers.

29. The system of Claim 27 wherein said fabric has a weight of between about 5 and 8 ounces per square yard.

34. The system of Claim 27 wherein said sleeve is formed as an elongated sheet having opposed longitudinal edges, said opposed longitudinal edges including means for releasably attaching said opposed longitudinal edges together around the length of said material.

35. The system of Claim 34 further including means for securing said open ends of the sleeve to said length of material.

36. The system of Claim 27 wherein said sleeve is formed as a plurality of bands, each band comprising a short length of said fabric, said bands being spaced apart along the length of a material to be protected.

37. The system of Claim 36 wherein each of said bands is formed as a short length of fabric having opposed longitudinal edges, said opposed longitudinal edges including means for fastening said opposed longitudinal edges together around the length of a material to be protected.

38. The system of Claim 37 wherein said means for fastening said opposed longitudinal edges comprises hook and loop material.

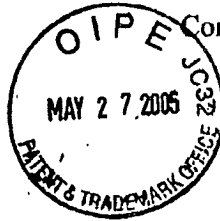
39. The system of Claim 27 further including a hood formed of the same fabric as said sleeve and fastened to at least one end of said sleeve for protecting an exposed end of said length of material.

EVIDENCE APPENDIX

1. Declaration under 37 CFR 1.132 dated May 27, 2005 (the *Holland* Declaration).
2. Supplemental Declaration under 37 CFR 1.132 dated May 30, 2006 (the Supplemental Declaration).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.: 10/075,786
Applicant: John E. Holland et al.
Filed: February 13, 2002
TC/AU: 2831
Examiner: William H. Mayo III



Confirmation No. 9809

Docket No.: J3781-022 (24.1)
Customer No.: 26158

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION OF JOHN E. HOLLAND UNDER 35 U.S.C. 1.132

1. My name is John E. Holland and I am employed as President of JHRG, LLC ("JHRG"), assignee of the above-referenced patent application. My responsibilities include overall executive management of the company, overseeing production and sales. I am also a co-inventor of the invention claimed in the above-referenced pending U.S. patent application.

2. JHRG specializes in the production of engineered textiles with emphasis on high-performance fabrics. Our fabrics and products formed therefrom have been particularly successful commercially in the military engineered products market and in the commercial marine market. Each of the three principals (President, Vice President-Production, and Vice President-Sales) have had extensive careers within the textile industry.

3. JHRG is a small limited liability company (LLC) with 3 officers and an average of 35 employees. While one of the three officers has the title of Vice President-Sales, no personnel have sales responsibility specifically for our anti-chafe product. In addition to my duties as president, I personally perform sales functions for the entire product line, which includes the line of anti-chafe protective covers and sleeves.

4. One of the products offered by JHRG is an anti-chafe protective cover or sleeve, which is the commercial embodiment of the invention disclosed and claimed in the above-referenced patent application. Specifically, the protective covers or sleeves are formed of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity of equal to or greater than 7 grams/denier. These anti-chafe protective covers are for use on electrical cables, hoses, ropes, and the like, and are particularly useful in environments in which the cables, etc. are subjected to abrasion, chemical exposure, saltwater, or extreme weather conditions.

5. JHRG first introduced the anti-chafe protective covers and sleeves in 2002.

6. Gross sales attributable to the anti-chafe protective covers and sleeves have been over \$380,000 since 2002.

While we understand that gross sales alone do not necessarily provide a complete picture of the success of our anti-chafe product, prior to Year 2002, JHRG was selling no protective covers for lengths of material such as ropes, hoses, cables, etc. in this relatively small market for similar products.

7. Prior to introduction of the anti-chafe cover, as claimed and described in the pending patent application, other protective sleeves and/or covers were being offered in the market for similar applications. For example, protective covers for the same environments, made of 1000 denier CORDURA® (nylon polymer) and similarly sized ballistic-grade nylon have been marketed for similar applications. CORDURA® fabric typically sells for about \$6.50 per linear yard (60 inches wide) and ballistic-grade nylon typically sells for about \$15.00 per linear yard (60 inches wide), depending upon the denier of the yarn used to form the fabric. In comparison, the SPECTRA® fabric used in our anti-chafe product sells for about \$60.00 per

yard. When used to construct the claimed protective covers, our anti-chafe covers sell for about \$180.00 per yard.

8. In terms of performance and service life, experience to date has shown that the anti-chafe covers and sleeves made from SPECTRA® fabric substantially and consistently outperform and outlast similar products made from CORDURA® or ballistic nylon. With respect to the degree of protection provided to the cables covered by CORDURA®, ballistic nylon, and the SPECTRA anti-chafe product, some specific examples are described below.

9. The anti-chafe covers have not been widely advertised. For the years 2002 – 2005, JHRG has spent less than \$50,000 promoting the anti-chafe covers and sleeves through trade shows, sales calls, and direct mail advertising. JHRG has not expended any money on print, radio or television advertising. Customers typically learn of the anti-chafe covers from “word-of-mouth” advertising.

10. Because of the substantial differences in cost, it took over two years (2002 and 2003) to convince potential customers that the anti-chafe protective covers and sleeves were worth the expenditure. Although the problem of chafing (wear and tear) in the transportation industry has been a long-standing concern and source of loss, it was simply not apparent, at first, to customers that this high-performance, high cost replacement product would better protect the cables, hoses, and ropes, tangibly save them from substantial replacement costs, prevent potential losses of their vessels and/or possible loss of life or serious injury.

11. Despite our limited sales and marketing activities, the anti-chafe sleeves and covers, as described and claimed in the pending patent application, have seen tremendous success in those industries that rely upon expensive lengths of rope, cordage, hoses, and cables, despite the higher price of our product as compared to other products being offered.

12. Included as Exhibit A is an excerpt from the January 2003 edition of nationally acclaimed SAIL Magazine, a trade magazine for sailing and maritime enthusiasts. As a tribute to SAIL's former technical editor, Freeman K. Pittman, the magazine conducts an annual search for products that embody innovation, exceptional quality, or both in the area of products for the nautical enthusiast. Technical consultants narrow down the search to those products worthy of being designated as the Freeman K. Pittman Editors' Choice selections. In the January 2003 edition, JHRG's protective sleeves, that are the subject of the instant patent application and the invention claimed therein, were one of the best new products chosen. As the excerpt notes, the product "...ain't cheap, but it sure works." Of note is that the technical consultant, the author of the excerpt, notes that he has spent time over the years using different wrappings (chafing gear) to protect his dock lines, none of which have solved the problem of chafing.

13. Included as Exhibit B is a copy of a press release from Samson Rope Technologies dated January 23, 2003 announcing that they have been named as the exclusive distributor of JHRG's anti-chafe products. Since 2003, Samson has been a major customer of these products.

As described in the excerpt of Exhibit B, and of particular significance to the commercial success of the claimed protective sleeve, Samson Rope Technologies has been recognized in the rope and cordage industry for over 100 years (since 1878) as a leader in developing and manufacturing braided ropes. Samson has been a leader in exploring new fiber and rope technologies and constructions to meet the demands of the marine and recreational boating industries, in particular. Prior to the introduction of our anti-chafe covers and sleeves, Samson purchased used fire hose to form anti-chafing gear over critical portions of its cordage and rope products. Interestingly, anti-chafing gear is needed to protect ropes made from nylon,

polyester, and polypropylene. Polyester is the material that was used to form the protective cover described in U.S. Patent No. 5,300,337 to Andrieu, the primary reference cited by the examiner in the pending application. While used fire hose may be purchased very cheaply, Samson now purchases our product at a significantly higher price (~ \$60.00 per linear foot for our anti-chafe covers and sleeves versus \$1.00 per linear foot for used fire hose).

14. Included as Exhibit C is a letter dated September 17, 2002 from Titan Maritime, LLC. ("Titan") Titan is an internationally-renowned salvage and wreck recovery company that operates in extremely remote, harsh, and difficult environments. As indicated in the letter, Mr. Gage Parrot of Titan notes that Titan is faced with the serious problems of wear and tear in their daily operations, resulting in frequent umbilical, rig, hose, and line replacement. While Titan has tried other types of anti-chafe products, also including fire hose, these products have failed to provide the required degree of protection. Again, the claimed protective sleeves are "not inexpensive", however, they have proven "cost effective and superior."

15. Included as Exhibit D is a letter dated December 18, 2003 from Mr. Brad Gunn, Captain of the Schooner Downeast Rover. The Downeast Rover is a 55 foot commercial charter schooner certified for 29 passengers. As evidenced in the letter, the high-strength, high-performance material was in service during extreme hurricane conditions to protect synthetic nylon piling lines, yet experienced no visible wear.

16. Exhibits E and F provide additional evidence of the commercial success of the claimed anti-chafe covers by commercial enterprises. Exhibit E is illustrative of the recognition that the product has gained by experienced/expert users in the industry over other attempted anti-chafe constructions. As noted in Exhibit E, Mr. Mike Ring, VP/General Manager of McAllister

Towing of Florida states that the product is "...the best piece of chafe gear I've seen in 30 years in the business."

17. In addition to the exemplary sales described above, JHRG has also sold, and continues to sell, in increased quantities, the claimed protective covers to the United States Government. More specifically, the United States Navy and United States Coast Guard, with centuries of cumulative experience, have recognized the success of JHRG's protective covers and sleeves over prior anti-chafe products for use in the defense industry. Specifically, JHRG has sold the product for use on the following United States vessels:

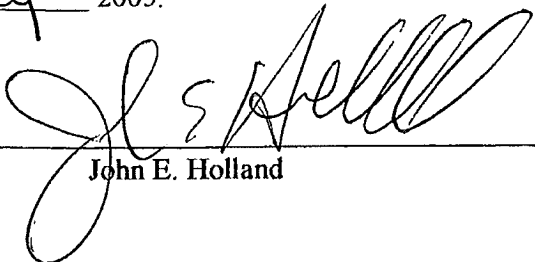
USCGC Yellowfin	USCGC Cochito	USCGC Harriet Lane
USCGC Kennebec	USCGC Tarpon	USN SBT22
USS Cape St. George	USS Donald Cook	USS Gonzalez
USS Ramage	USS Ross	USNS Comfort
USNS John Lenthall	USNS Walter S. Diehl	USS Benfold
USS Blackhawk	USS Doyle	USS Harry Truman
USS Hurricane	USS Mobile Bay	USS Salvor
USS Stout	USS Tortuga	USCGC Hickory

As those skilled in the art and knowledgeable in the industry will attest, procurement by the United States Government is not based on advertising or marketing; rather, procurement is based on bona fide need coupled with evaluation of a product against existing products designed for the same purpose. For example, we understand that the USCGC Hickory that is stationed in Alaska began using our anti-chafe product following a tidal surge that chafed a stern line, resulting in failure of the line and more than \$3,000,000 damage to the pier/dock. The rise and fall of the tide in that location is more than 30 feet, which makes chafing of lines a significant issue. As evidenced from the list above, the United States Navy has accepted and purchased this product for use on, among other vessels, its destroyers and cruisers, because our anti-chafe product outperforms all other products on the market for similar purposes.

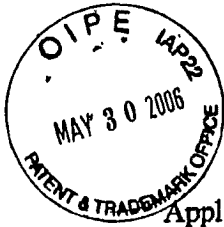
18. Another problem in the commercial maritime industry with previous anti-chafe devices has been the adverse interaction between materials. For example, in a commercial application, particularly when mooring/docking line movement is more than minimal, a great deal of friction is created between the mooring lines and any material with which the lines are in contact (such as covers or sleeves). This friction is great enough that protective coverings previously known, made of polyester and nylon, will melt or burn. This was particularly evident during the last hurricane season of 2004. JHRG's anti-chafe protective cover, however, showed no signs of abrasion, burn, or melt. When SPECTRA® yarn is woven into the protective sleeve of our claimed invention, the inner surface (against the protected line) of the fabric is relatively slick. Unexpectedly, when this slick surface characteristic is combined with the high strength of the fabric itself, there is minimal friction and minimal heat build up. As a result, the fabric is not damaged due to wear under these extreme conditions.

I hereby declare that all statements made herein of my own knowledge are true and that any statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

This is the 24th day of May 2005.



John E. Holland



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.: 10/075,786
Applicant: John E. Holland et al.
Filed: February 13, 2002
TC/AU: 2831
Examiner: William H. Mayo III

Confirmation No. 9809

Docket No.: J3781-022 (24.1)
Customer No.: 26158

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

SUPPLEMENTAL DECLARATION OF JOHN E. HOLLAND UNDER 35 U.S.C. 1.132

1. My name is John E. Holland and I am employed as President of JHRG, LLC ("JHRG"), assignee of the above-referenced patent application. My responsibilities include overall executive management of the company, overseeing production and sales. I am also a co-inventor of the invention claimed in the above-referenced pending U.S. patent application.
2. JHRG specializes in the production of engineered textiles with emphasis on high-performance fabrics. Our fabrics and products formed therefrom have been particularly successful commercially in the military engineered products market and in the commercial marine market. Each of the three principals (President, Vice President-Production, and Vice President-Sales) have had extensive careers within the textile industry.
3. JHRG is a small limited liability company (LLC) with 3 officers and an average of 35 employees. While one of the three officers has the title of Vice President-Sales, no personnel have sales responsibility specifically for our anti-chafe product. In addition to my

duties as president, I personally perform sales functions for the entire product line, which includes the line of anti-chafe protective covers and sleeves.

4. One of the products offered by JHRG is an anti-chafe protective cover or sleeve, which is the commercial embodiment of the invention disclosed and claimed in the above-referenced patent application. Specifically, the protective covers or sleeves are formed of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity of equal to or greater than 7 grams/denier. These anti-chafe protective covers are for use on electrical cables, hoses, ropes, and the like, and are particularly useful in environments in which the cables, etc. are subjected to abrasion, chemical exposure, saltwater, or extreme weather conditions.

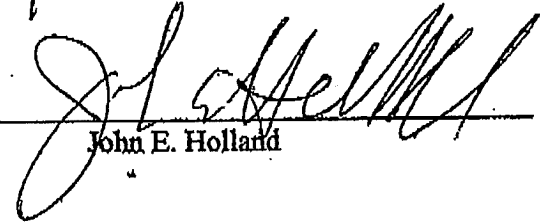
5. Prior to introduction of the anti-chafe cover, as claimed and described in the pending patent application, other protective sleeves and/or covers were being offered in the market for similar applications. As noted in my previous Declaration, protective covers for the same environments made of 1000 denier CORDURA® (nylon polymer) and similarly sized ballistic-grade nylon have been marketed for similar applications. By way of comparison, in a recent order our four foot long sleeve sold for \$104.00 (\$26 per foot). Aside from special orders, our sleeves, depending upon the rope diameter to be protected, are wholesale prices range from about \$15.50 per foot to about \$26.50 per foot. Based on the catalog of one retailer, covers formed from ballistic-grade nylon sell for between about \$3.75 per foot and \$5.50 per foot. Abrasion-resistant polyester covers sold by another retailer sell for around \$0.45 per foot. Triple-layered cotton duck canvas covers are offered at between about \$1.00 and \$1.32 per foot. Used fire hose, which has also been used in similar applications, sells for about \$5 per foot,

depending on the dimensions of the hose. Despite such wide differences in price, JHRG's covers continue to sell based on degree of protection offered, their durability, and their light weight.

6. In addition to more conventional uses in protecting mooring lines and hoses, our covers are also now used to protect the umbilical cords used by divers. Because our covers are two to ten times lighter than conventional materials, they have been found ideal for use on umbilical cords up to 200 feet long. Further, because the surfaces of our covers formed from SPECTRA® are slick, the covers slide with movement of the umbilical cords, thus not hampering movement of the divers.

I hereby declare that all statements made herein of my own knowledge are true and that any statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

This is the 30th day of May 2006.


John E. Holland

RELATED PROCEEDINGS APPENDIX

On March 3, 2005 the Board of Patent Appeals and Interferences entered a Decision on Appeal in this application, affirming the rejection of then existing claims 1-13 and 27-40 (Appeal No. 2005-0288). A copy of that decision is included in the Related Proceedings Appendix.

On November 13, 2007, the Board of Patent Appeals and Interferences entered a Decision on a second Appeal in this application, affirming the rejection of then existing claims 1-13 and 27-40 (Appeal No. 2007-1962). A copy of that decision is included in the Related Proceedings Appendix.

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte JOHN E. HOLLAND
and
CONNIE W. HOLLAND

Appeal No. 2005-0288
Application No. 10/075,786

HEARD: March 9, 2005

Before McQUADE, NASE, and BAHR, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection (mailed March 17, 2003) of claims 1 to 13 and 27 to 40, which are all of the claims pending in this application.¹

We AFFIRM.

¹ Claims 14 to 26 were canceled subsequent to the final rejection.

BACKGROUND

The appellants' invention relates to the field of protective coverings, and, more particularly to a protective cover for lengths of material such as ropes, tethers, lanyards, etc. of the type that are likely to be subjected to continuous abrasion and/or exposure to undesirable environmental conditions or chemicals (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Kite, III et al. (Kite)	4,891,256	Jan. 2, 1990
Holt et al. (Holt)	5,070,597	Dec. 10, 1991
Andrieu et al. (Andrieu)	5,300,337	Apr. 5, 1994
Holland et al. (Holland)	5,395,682	Mar. 7, 1995
Ratigan	5,441,790	Aug. 15, 1995

The rejections under appeal are as follows:²

² In the final rejection (p. 3) claims 1 to 13 were provisionally rejected under 35 U.S.C. § 101 as claiming the same invention as that of claims 1 to 13 of copending Application No. 09/860,423. The appellants filed a Terminal Disclaimer on October 30, 2003 supposedly to obviate the provisional double patenting rejection based on pending Application Number 09/860,423. However, while a Terminal Disclaimer can obviate a provisional "obviousness type" double patenting rejection, a Terminal Disclaimer can not obviate a provisional "same invention type" double patenting rejection. The appellants have not contested this rejection in the brief. The examiner has not set forth this rejection in the answer. It is unclear to us as to the status of this rejection.

1. Claims 1 to 9 and 27 to 35 stand rejected under 35 U.S.C. § 103 as being unpatentable over Andrieu in view of Holland.
2. Claim 40 stands rejected under 35 U.S.C. § 103 as being unpatentable over Ratigan in view of Holland.
3. Claims 10 to 12 and 36 to 38 stand rejected under 35 U.S.C. § 103 as being unpatentable over Andrieu in view of Holland (herein referred to as modified Andrieu), as applied to claims 1 and 27 above, further in view of Kite.
4. Claims 13 and 39 stand rejected under 35 U.S.C. § 103 as being unpatentable over Andrieu in view of Holland, as applied to claims 1 and 27 above, further in view of Holt.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the final rejection and the answer (mailed February 24, 2004) for the examiner's complete reasoning in support of the rejections, and to the brief (filed July 2, 2003) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the

respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Rejection 1

We sustain the rejection of claims 1 to 9 and 27 to 35 under 35 U.S.C. § 103 as being unpatentable over Andrieu in view of Holland.

The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Moreover, in evaluating such references it is proper to take into account not only the specific teachings of the references but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. In re Preda, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

Claim 1 reads as follows:

A protective cover for lengths of material used in environments in which said lengths of material are subjected to abrasion, chemicals, or weather extremes, said protective cover comprising a sleeve surrounding said length of material, said sleeve having open ends and formed of a fabric made substantially of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7

grams/denier so that the protective cover is abrasion-resistant, cut-resistant, and tear-resistant.^[3]

Andrieu's invention relates to wraparound fabric sleeves of interlaced fibrous materials, the sleeves being preferably formed by a weaving process. More particularly, Andrieu's invention relates to wraparound sleeves having a closure device and even more specifically to wraparound sleeves for the protection of elongated articles, such as cables wherein the sleeves are intended to provide protection from the effects of abrasion or heat as well as to maintain the elongated articles in a neatly bundled arrangement so that they are not damaged by moving machinery parts or the like.

Andrieu teaches (column 1, lines 48-61) that (1) a need exists for a simple and reliable, relatively low cost system, for closure of a sleeve which will accommodate variations in the diameter of a bundle of elongated articles, such as cables having

³ The appellants' specification (p. 2) teaches that the protective cover is constructed from a woven fabric formed primarily from high-strength (high performance) yarns. As used herein, "high-strength yarns" refers to the entire family of yarns that have a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier. Such high strength yarns may be formed from long chain polyethylene fibers (known as SPECTRA[®]), aramids such as KEVLAR[®] (Dupont), liquid crystal polymers such as VECTRAN[®] (Hoechst Celanese), or combinations thereof. The preferred yarn for the fabric is available from suppliers, such as Allied Signal, under the tradename SPECTRA[®]. Fabrics woven or knitted from selected one of these yarns have a high level of tear-resistance, abrasion-resistance, cut-and-stab resistance, ultraviolet radiation resistance, and resistance to chemicals and low temperatures. These characteristics improve both the strength and durability of the fabric. In addition, fabric so formed is only about one-third the weight of conventional fabrics like vinyl-coated nylons and polyesters.

connectors intermediate their length, while allowing for cable breakouts at points where a cable is required to be connected to a particular instrument or item of equipment; and (2) in accordance with the invention, a ribbon or web of sleeving material is provided, the sleeving material being comprised of monofilament warps and bulky multi-filament yarn as the fill material.

Figures 1 and 2 of Andrieu illustrate a woven fabric sleeve material of the kind incorporating the features of his invention. The sleeve material is comprised of monofilament warps 10 which are formed of polyester or other suitable material which are preferably of the family of materials commonly referred to as engineered plastics. Materials in the family of engineered plastics of the type referred to by Andrieu include plastics that have a tensile modulus of greater than 50,000 psi and in the range of from about 50,000 to about 200,000.

Holland's invention is directed to flexible curtains for covering cargo containers, luggage trailers, and truck openings, and more particularly, to a fabric curtain cover that has minimal weight, but increased abrasion resistance, tear-strength, cut-and-stab resistance, and is compatible with the environment for which it is intended. In the BACKGROUND OF THE INVENTION section, Holland discusses the disadvantages of

the standard cargo cover constructed from canvas or from vinyl coated nylon or polyester. Then, in the SUMMARY OF THE INVENTION section, Holland teaches that:

The present invention is directed to an improved fabric and fabric cargo cover fabricated from yarns formed of long chain expanded polyethylene fibers. One source of such fibers is sold by Allied Signal under the trademark "Spectra". These fibers are sometimes referred to as "ultra high molecular weight polyethylene" within the scope of U.S. Pat. No. 4,413,110. The specification and teachings of this patent are incorporated by reference. Such a fabric has a high level of tear-resistance, abrasion resistance, cut-and-stab resistance, and chemical and cold resistance to improve the strength and durability of the fabric. In addition, such fabric is about one-third the weight of such conventional fabrics as vinyl coated nylon. This results in fuel savings of about \$30 per year for each pound of fabric used.

Holland teaches (column 3, lines 16-24) that:

The improved fabric is intended to be used as a fabric to cover cargo containers, luggage trailers, and truck openings. While the improved fabric can be used for a variety of purposes, the ensuing description is directed to a fabric cover for a cargo container.

Accordingly, it is an object of the present invention to provide a durable, lightweight fabric that has improved tear-strength, cut-and-stab resistance, abrasion resistance, cold resistance, and chemical resistance.

Holland further teaches (column 6, lines 3-9) that:

The present invention has been described as utilized on a cargo cover 10 for a cargo container 12. The fabric 30 used for cargo cover 10 may also be used for luggage trailer curtains and truck closure curtains generally covered by fabric and other uses where a lightweight, tear-resistant, abrasion resistant, stab-and-cut resistant, chemical resistant, and cold resistant fabric is required.

In the rejection of claim 1, the examiner ascertained (answer, p. 7) that Andrieu does not disclose the protective cover being made from high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier, wherein the yarns are cut and tear resistant. The examiner then determined (answer, pp. 8-9) that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the protective cover of Andrieu (which is made of polyester fibers) to comprise Spectra[®] fibers and the fabric parameters of the protective fabric as taught by Holland because Holland teaches that such a fabric by made of commercially available Spectra[®] fibers and having the specified parameters, overcomes the disadvantages of polyester fabric covers, has minimal weight, increased abrasion resistance, tear strength, cut and stab resistance, and is compatible with the environment in which the cover is used.

The appellants argue that claim 1 is not suggested by the teachings of Andrieu and Holland for the following reasons. First, Andrieu's cover is not formed from a high performance yarn. Second, Holland is directed to a cargo curtain, not a protective sleeve, and as such is non-analogous. Third, there is no motivation, absent the use of impermissible hindsight, for a person having ordinary skill in the art to have combined the teachings of Andrieu and Holland so as to arrive at the claimed invention. Lastly,

the appellants urge that Andrieu's invention is directed to a low cost fabric which teaches away from the invention which utilizes a costly high performance yarn.

In our view, the combined teachings of Andrieu and Holland would have made it obvious at the time the invention was made to a person having ordinary skill in the art to have modified the protective cover of Andrieu so as to utilize Spectra® fibers as set forth in the rejection under appeal. We find the appellants' arguments unpersuasive for the following reasons.

First, while Andrieu's cover is not formed from a high performance yarn⁴, the teachings of Holland are sufficient to have made it obvious at the time the invention was made to a person having ordinary skill in the art to have modified the protective cover of Andrieu so as to utilize Spectra® fibers. In this regard, we note the rejection is under 35 U.S.C. § 103 not 35 U.S.C. § 102.

Second, while Holland is directed to a cargo curtain, not a protective sleeve, Holland is analogous art. The test for non-analogous art is first whether the art is within the field of the inventor's endeavor and, if not, whether it is reasonably pertinent to the

⁴ The appellants' specification (p. 2) teaches that a high- strength (high performance) yarn has a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier.

problem with which the inventor was involved. In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979). A reference is reasonably pertinent if, even though it may be in a different field of endeavor, it logically would have commended itself to an inventor's attention in considering his problem because of the matter with which it deals. In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1061 (Fed. Cir. 1992). In the present instance, we are informed by the appellants' originally filed specification (p. 2) that the present invention is directed to a simple, yet effective, abrasion-resistant protective system for lengths of material such as hoses, cables, ropes, etc. of the type used in high abrasion applications. Holland teaches that his fabric has a high level of tear-resistance, abrasion resistance, cut-and-stab resistance, and chemical and cold resistance to improve the strength and durability of the fabric and thus falls at least into the latter category of the Wood test, and logically would have commended itself to an artisan's attention in considering the appellants' problem. Thus, we conclude that Holland is analogous art.

Third, there is motivation, without the use of impermissible hindsight⁵, for a person having ordinary skill in the art to have combined the teachings of Andrieu and

⁵ The use of hindsight knowledge derived from the appellants' own disclosure to support an obviousness rejection under 35 U.S.C. § 103 is impermissible. See, for example, W. L. Gore and Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984).

Holland so as to arrive at the claimed invention. Holland's clear teaching that a fabric made of commercially available Spectra® fibers has minimal weight, increased abrasion resistance, tear strength, and cut and stab resistance which overcomes the disadvantages of polyester fabric covers provides, in our opinion, sufficient motivation for an artisan to have modified Andrieu's protective cover by using Spectra® fibers, thus arriving at the claimed invention. Additionally, we note that Holland also teaches that his improved fabric can be used for uses other than as a cargo cover where a lightweight, tear-resistant, abrasion resistant, stab-and-cut resistant, chemical resistant, and cold resistant fabric is required.

Lastly, Andrieu's invention does not teach away from the claimed invention. As to the specific question of "teaching away," our reviewing court in In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994) stated "a reference will teach away if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." In this case, Andrieu does not teach or suggest that high performance yarns would not work in a protective sleeve. Instead, Andrieu teaches that the woven fabric sleeve material is comprised of monofilament warps which are formed of polyester or other suitable material from the family of materials commonly referred to as engineered plastics. As such, it is our

view that Andrieu suggests utilizing engineered plastics to form the woven fabric sleeve. Holland clearly teaches the benefits of a fabric which utilizes an engineered plastic high performance yarn (i.e., Spectra® fibers).

For the reasons set forth above, the decision of the examiner to reject claim 1 under 35 U.S.C. § 103 is affirmed.

The decision of the examiner to reject claims 2 to 9 and 27 to 35 under 35 U.S.C. § 103 is also affirmed since the appellants have not argued separately the patentability of any particular claim apart from the others, thus allowing claims 2 to 9 and 27 to 35 to fall with claim 1 (see In re Young, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); and In re Wood, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978)).

Rejection 2

We sustain the rejection of claim 40 under 35 U.S.C. § 103 as being unpatentable over Ratigan in view of Holland.

Claim 40 reads as follows:

An abrasion-resistant rope that must be periodically moved or pulled across abrasive services comprising an outer protective layer formed substantially from high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier so that the protective layer is abrasion-resistant, cut-resistant, and tear-resistant.

Ratigan's invention relates to the protection of synthetic rope from abrasion, more specifically chafe abrasion of synthetic marine mooring and anchor rope. Ratigan's chafe protection device consists of a piece of textile material made of synthetic fiber, like nylon, or polypropylene, or polyester, or acrylic. Referring to Figures 1-3, the chafe protection device comprises a section of material, consisting of synthetic fiber material on one side 1 and latex mat backing on the reverse side 2. Permanently attached to the longitudinal borders of the latex mat surface material 2 are continuous strips of VELCRO® hooks 3 and 4. To cover a rope with the protective device, either of the longitudinal strips, 3 or 4, are placed on and in longitudinal alignment with the rope 5. The protective material is then wrapped tightly by hand around the rope. A completed wrap is shown in Figure 4. Unraveling of the protective device from the rope is prevented by the remaining longitudinal strip of VELCRO® hooks, 3 or 4 which bind with the fiber material 1 of the protective device.

In the rejection of claim 40, the examiner ascertained (answer, pp. 9-10) that Ratigan does not disclose the protective cover being made from high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier, wherein the yarns are cut resistant. The examiner then determined (answer, p. 10) that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the protective cover of Ratigan (which is made of polyester fibers) to comprise Spectra[®] fibers and the fabric parameters of the protective fabric as taught by Holland because Holland teaches that such a fabric by made of commercially available Spectra[®] fibers and having the specified parameters, overcomes the disadvantages of polyester fabric covers, has minimal weight, increased abrasion resistance, tear strength, cut and stab resistance, and is compatible with the environment in which the cover is used.

The appellants argue that claim 40 is not suggested by the teachings of Ratigan and Holland for the following reasons. First, Ratigan's protective cover is not formed from a high performance yarn. Second, Holland is directed to a cargo curtain, not a protective sleeve, and as such is non-analogous. Third, there is no motivation, absent the use of impermissible hindsight, for a person having ordinary skill in the art to have combined the teachings of Ratigan and Holland so as to arrive at the claimed invention.

In our view, the combined teachings of Ratigan and Holland would have made it obvious at the time the invention was made to a person having ordinary skill in the art to have modified the protective cover of Ratigan so as to utilize Spectra® fibers as set forth in the rejection under appeal. We find the appellants' arguments unpersuasive for the following reasons.

First, while Ratigan's cover is not formed from a high performance yarn, the teachings of Holland are sufficient to have made it obvious at the time the invention was made to a person having ordinary skill in the art to have modified the protective cover of Ratigan so as to utilize Spectra® fibers. In this regard, we note the rejection is under 35 U.S.C. § 103 not 35 U.S.C. § 102.

Second, Holland is analogous art for the reasons set forth above.

Lastly, there is motivation, without the use of impermissible hindsight, for a person having ordinary skill in the art to have combined the teachings of Ratigan and Holland so as to arrive at the claimed invention. Holland's clear teaching that a fabric made of commercially available Spectra® fibers has minimal weight, increased abrasion resistance, tear strength, and cut and stab resistance which overcomes the disadvantages of polyester fabric covers provides, in our opinion, sufficient motivation

for an artisan to have modified Ratigan's protective cover by using Spectra® fibers, thus arriving at the claimed invention. Additionally, we note that Holland also teaches that his improved fabric can be used for uses other than as a cargo cover where a lightweight, tear-resistant, abrasion resistant, stab-and-cut resistant, chemical resistant, and cold resistant fabric is required.

For the reasons set forth above, the decision of the examiner to reject claim 40 under 35 U.S.C. § 103 is affirmed.

Rejection 3

We sustain the rejection of claims 10 to 12 and 36 to 38 under 35 U.S.C. § 103 as being unpatentable over Andrieu in view of Holland and Kite.

In this rejection, the examiner proposes to combine the closure device of Andrieu as modified by Holland, and the plurality of axially compressible and radially expandable devices of Kite (see Figure 3). The appellants argue (brief, p. 10) that:

As argued above, Andrieu et al. cannot be properly modified by Holland et al. Further, the Examiner again provides no explanation how or why one of ordinary skill would be motivated to modify Andrieu et al., and there is no teaching, suggestion, or motivation in Andrieu et al. for such a modification.

The appellants' argument is unpersuasive. First, there is ample motivation to modify Andrieu based on the teachings of Holland as set forth previously. Second, both Andrieu and Kite provide sufficient motivation to have made it obvious at the time the invention was made to a person having ordinary skill in the art to form the protective cover as a plurality of bands to provide cable breakouts as shown in Figure 3 of Kite.

For the reasons set forth above, the decision of the examiner to reject claims 10 to 12 and 36 to 38 under 35 U.S.C. § 103 is affirmed.

Rejection 4

We sustain the rejection of claims 13 and 39 under 35 U.S.C. § 103 as being unpatentable over Andrieu in view of Holland and Holt.

In this rejection, the examiner proposes to combine the closure device of Andrieu as modified by Holland, and the tubular rubber member of Holt to obtain a protective cover with a fabric hood fastened to at least one end. The appellants argue (brief, pp. 10-11) that there is no teaching, suggestion, or motivation in the applied prior art for such a modification.

The appellants' argument is unpersuasive. It is our opinion that Holt's teaching of end cap 19 (see Figure 6D) provides sufficient motivation to have made it obvious at the time the invention was made to a person having ordinary skill in the art to add an end cap to the closure device of Andrieu as modified by Holland so as to close off the end of a cable or hose.

For the reasons set forth above, the decision of the examiner to reject claims 13 and 39 under 35 U.S.C. § 103 is affirmed.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN E. HOLLAND and CONNIE W. HOLLAND

Appeal 2007-1962
Application 10/075,786
Technology Center 2800

Decided: November 13, 2007

Before MURRIEL E. CRAWFORD, JENNIFER D. BAHR, and
DAVID B. WALKER, *Administrative Patent Judges*.

BAHR, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

John E. Holland and Connie W. Holland (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1-13 and 27-40, all of the pending claims. We have jurisdiction over this appeal under 35 U.S.C. § 6 (2002). This is the second appeal to this Board on this application. In the first appeal (Appeal 2005-0288), a panel¹ of this Board

¹ Judges McQuade and Nase have retired and have been replaced by Judge Crawford and Judge Walker.

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Application 10/075,786

rendered a decision (mailed March 29, 2005), hereinafter “Decision,” affirming the Examiner’s decision rejecting claims 1-13 and 27-40. The claims and rejections before us in this appeal are the same claims and rejections that were before the prior panel in Appeal 2005-0288. Subsequent to the Decision in Appeal 2005-0288, Appellants filed a Declaration of John E. Holland (filed May 27, 2005) and Supplemental Declaration of John E. Holland (filed May 30, 2006) under 37 C.F.R. § 1.132.

THE INVENTION

Appellants’ claimed invention is directed to “a protective cover for lengths of material such as ropes, tethers, lanyards, etc. of the type that are likely to be subjected to continuous abrasion and/or exposure to undesirable environmental conditions or chemicals” (Spec. 1:9-11). Claim 1 is illustrative of the claimed subject matter and reads as follows:

1. A protective cover for lengths of material used in environments in which said lengths of material are subjected to abrasion, chemicals, or weather extremes, said protective cover comprising a sleeve surrounding said length of material, said sleeve having open ends and formed of a fabric made substantially of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier so that the protective cover is abrasion-resistant, cut-resistant, and tear-resistant.

THE EVIDENCE

The Examiner relies upon the following as evidence of obviousness:

Kite, III (Kite)	4,891,256	Jan. 2, 1990
Holt	5,070,597	Dec. 10, 1991
Andrieu	5,300,337	Apr. 5, 1994
Holland	5,395,682	Mar. 7, 1995
Ratigan	5,441,790	Aug. 15, 1995

Appellants rely on the following as evidence of nonobviousness:

Declaration of John E. Holland (filed May 27, 2005).

Supplemental Declaration of John E. Holland (filed May 30, 2006).

THE REJECTIONS

The following rejections are before us for review.

Claims 1-9 and 27-35 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Andrieu and Holland.

Claim 40 stands rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Ratigan and Holland.

Claims 10-12 and 36-38 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Andrieu, Holland, and Kite.

Claims 13 and 39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Andrieu, Holland, and Holt.

The Examiner provides reasoning in support of the rejections in the Answer (mailed September 18, 2006). Appellants present opposing arguments in the Appeal Brief (filed July 28, 2006).

THE ISSUE

Appellants argue claims 1-9 and 27-35, rejected as unpatentable over the combined teachings of Andrieu and Holland, as a group (Br. 10-17). Therefore, in accordance with 37 C.F.R. § 41.37(c)(1)(vii) (2007), we select claim 1 as the representative claim to decide the appeal of this rejection, with claims 2-9 and 27-35 standing or falling therewith. Furthermore, Appellants rely solely on their argument against the rejection of claims 1-9 and 27-35 for the patentability of the remaining claims on appeal (Br. 17). Consequently, we focus our attention on the rejection of claim 1, with the rejections of claim 40 as unpatentable over the combined teachings of Ratigan and Holland, claims 10-12 and 36-38 as unpatentable over the combined teachings of Andrieu, Holland, and Kite, and claims 13 and 39 as unpatentable over the combined teachings of Andrieu, Holland, and Holt standing or falling with the rejection of claim 1. *See In re Nielson*, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987).

In rejecting claim 1 as unpatentable over the combination of Andrieu and Holland, the Examiner contends that it would have been obvious to modify Andrieu's protective cover, made of polyester fibers, so as to comprise Spectra® fibers, with the fabric parameters as taught by Holland (Ans. 8-9). The Examiner reasons that Holland teaches that such a commercially available fabric overcomes the disadvantages of polyester fabric covers (col. 2, ll. 16-23) and has minimal weight, increased abrasion resistance, tear strength, cut and stab resistance, and compatibility with the environment in which the cover is used (col. 1, ll. 5-10) (Ans. 9). The Examiner also points out that it has been held to be within the general level of skill of a worker in the art to select a commercially available or known

material on the basis of its suitability for the intended use as a matter of obvious design choice (Ans. 9). Appellants argue that (1) there is no teaching or suggestion in Andrieu of any reason that would suggest modification to use a yarn such as that taught by Holland and, in fact, the teachings of Andrieu provide disincentive for one of ordinary skill in the art to substitute Appellants' more expensive yarn material (Br. 10) and (2) the evidence of secondary considerations provided in the Holland Declaration rebuts the prima facie case of obviousness found by the Board in the Decision in Appeal 2005-0288 (Br. 14).

In light of the contentions of the Examiner and Appellants, the issue presented in this appeal is whether Appellants have demonstrated that the Examiner erred in rejecting claim 1 as unpatentable over the combination of Andrieu and Holland. This issue turns on whether, considering the totality of the evidence and argument presented by the Examiner and Appellants, the evidence of nonobviousness outweighs the evidence of obviousness.

THE FACTS

1. Andrieu discloses a wraparound sleeve for the protection of elongated articles, such as cables, wherein the sleeve is intended to provide protection from abrasion and heat and to maintain the articles in a neatly bundled arrangement so they are not damaged by moving machinery parts or the like (col. 1, ll. 14-20).
2. Andrieu's sleeve comprises monofilament warps 10 formed preferably of polyester (col. 3, ll. 8-10 and 44-48) interlaced with strands of bulky multifilament yarn 11 extending in the fill direction (col. 3, ll. 60-62). Nylon is especially preferred for the warps because

it is relatively inexpensive and sufficiently impervious to changes in temperature (col. 3, ll. 44-48).

3. The Examiner finds that Andrieu does not expressly disclose the protective cover being made of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier, wherein the protective cover is cut-resistant and tear-resistant (Ans. 7).
4. Holland discloses an improved fabric and a fabric cargo cover fabricated from yarns formed of long chain expanded polyethylene fibers, one source of such fibers being sold by Allied Signal under the trademark SPECTRA® (col. 2, ll. 25-30).
5. Holland describes the improved fabric as having “a high level of tear-resistance, abrasion resistance, cut-and-stab resistance, and chemical and cold resistance to improve the strength and durability of the fabric” (col. 2, ll. 34-37).
6. Holland touts the cargo cover made from the improved fabric as being more durable and lighter in weight than an analogous prior art cargo cover made from vinyl-coated nylon or polyester (col. 5, ll. 59-62).
7. Test results indicate an expected product life for a cargo cover made of Holland’s improved fabric that is at least three times that for prior art covers made from vinyl-coated nylon (col. 5, l. 62 to col. 6, l. 2).
8. Holland teaches use of the improved fabric in applications where a lightweight, tear-resistant, abrasion-resistant, stab-and-cut resistant, chemical resistant, and cold resistant fabric is required (col. 6, ll. 7-9).
9. Yarns formed from long chain polyethylene fibers sold under the trade name SPECTRA® are “high performance” yarns having a tensile

modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier (Spec. 2:22-29). Moreover, fabrics woven or knitted from such yarns have a high level of tear resistance, abrasion resistance, and cut-and-stab resistance (Spec. 2:29-30).

10. Appellant John E. Holland is President of JHRG, LLC (JHRG), a small company with an average of 35 employees (Holland Decl. ¶¶ 1, 3).
11. JHRG offers an anti-chafe protective cover or sleeve formed of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier. These anti-chafe covers are for use on electrical cables, hoses, ropes, etc. and are particularly useful in environments in which the cables, etc. are subjected to abrasion, chemical exposure, salt water, or extreme weather conditions (Holland Decl. ¶ 4).
12. Gross sales attributable to the anti-chafe protective covers and sleeves have been over \$380,000 since 2002, when they were first introduced (Holland Decl. ¶¶ 5-6). There is no indication in the record as to the market share that those gross sales represent.
13. Prior to introduction of the anti-chafe cover (Fact 11), protective covers for the same environments, including those made of a nylon polymer fabric of fibers sold under the trademark CORDURA® and of a ballistic-grade nylon, have been marketed. Such covers have been offered for sale at significantly lower prices than JHRG's anti-chafe covers (Holland Decl. ¶ 7, Suppl. Holland Decl. ¶ 5). There is

no evidence in the record as to whether the JHRG anti-chafe cover sales have cut into sales of these other available covers.

14. Fire hose, used by Titan Maritime, LLC (Titan) as an anti-chafe product on its umbilicals and hydraulic lines in the past (Holland Decl. Ex. C), also typically sells, at least in used condition, significantly cheaper than JHRG's anti-chafe cover (Suppl. Holland Decl. ¶ 5).
15. For the years 2002-2005, JHRG spent less than \$50,000 promoting the anti-chafe covers and sleeves through trade shows, sales calls, and direct mail advertising; customers typically learn of the anti-chafe covers from "word-of-mouth" advertising (Holland Decl. ¶ 9). There is no evidence in the record showing the typical mode of advertising in this industry.
16. The Holland Declaration states that it took over two years (2002 and 2003) to convince potential customers that the anti-chafe covers and sleeves were worth the expenditure, because of the substantial price differential compared to other available alternatives (Holland Decl. ¶ 10), but does not state the basis for this conclusion. We infer from this statement that JHRG did not see appreciable sales during the first two years after the anti-chafe covers and sleeves were introduced.
17. JHRG's anti-chafe product has received numerous accolades (Holland Decl. ¶¶ 12-16, Ex. A-F). Our findings with respect to these accolades follow.
18. In the January 2003 issue of SAIL magazine, technical editor Freeman K. Pittman touted JHRG's anti-chafing product as very impressive compared to wrapping "tea towels and underwear around

[his] dock lines” (Holland Decl. Ex. A). Pittman’s article states that he has been trying to wear out a piece of the product JHRG sent to him months earlier but has not made a dent in it and says of the product that “[i]t ain’t cheap, but it sure works.” *Id.*

19. In a press release dated January 23, 2003, Samson Rope Technologies (Samson) announced its selection as exclusive distributor of high-strength Chafe Gear from JHRG. The press release touts the chafe gear products as offering “significant advantages over other chafe gear materials currently on the market in terms of extending the durability of high-performance ropes, in-field installation and reduced weight.” Holland Decl. Ex. B. Prior to introduction of JHRG’s anti-chafe products, Samson purchased used fire hose, which is significantly less expensive than JHRG’s product, as anti-chafing gear over critical portions of its cordage and rope products (Holland Decl. ¶ 13).
20. In a letter to JHRG in September 2002, Gage Parrot, Asset Manager at Titan, wrote that, prior to installation of JHRG’s anti-chafe gear on its diver umbilicals and hydraulic pump and tooling hoses, Titan was seeing significant chafe on all hoses and umbilicals after one to two weeks of operation and that they have yet to replace one length of the JHRG chafe gear since its installation one month earlier (Holland Decl. Ex. C). The letter is not clear on what anti-chafe gear, if any, was used when significant chafe after one to two weeks was experienced. The letter also characterizes the JHRG gear as more expensive but superior to several different types of anti-chafe gear used in the past. *Id.* With the exception of the reference to fire hose,

the letter does not specify what those several different types of anti-chafe gear were.

21. Brad Gunn, Captain of the schooner Downeast Rover, attributes the success of the JHRG anti-chafe gear for his application to “[t]he grommets [added to permit him] to seize the gear to the lines, preventing migration from the critical area” (Holland Decl. Ex. D).
22. Mike Ring of McAllister Towing of Florida describes something (the record is not clear what) as “the best piece of chafe gear I’ve seen in 30 years in the business” (Holland Decl. ¶ 16, Ex. E). Exhibit E illustrates what appears to be a marine cable or rope covered with a protective sleeve. The protective sleeve appears to be somewhat frayed. While the caption of the photograph appears to indicate that the product described is some sort of chafe gear, presumably from JHRG, identified as “JHRG #SPAC-V-6x72’,” it is not clear from the record what that product comprises or whether it is even covered by any of the claims involved in this appeal. Accordingly, Exhibit E is of little probative value.
23. Exhibit F, attached to the Holland Declaration and discussed in Paragraph 16 therein, is a photograph of lobsterman Brent Wilson on a boat with one finger on a rope covered by a protective sleeve. The caption of the photograph states that, after testing “Supreme Protector Antichafe” for over a year, he assesses it as “Best I ever used.” The record does not provide any details of the Supreme Protector Antichafe. Accordingly, we cannot determine whether the subject of Exhibit F is a protective cover as recited in any of Appellants’ claims. Consequently, Exhibit F, like Exhibit E, is of little probative value.

24. JHRG has sold and continues to sell “the claimed protective covers” to the United States Government for use on 24 United States vessels (Holland Decl. ¶ 17). The Holland Declaration states that procurement by the United States Government is based not on advertising or marketing but, rather, on bona fide need coupled with evaluation of a product against existing products designed for the same purpose. *Id.* The statement that “[a]s evidenced from the list above, the United States Navy has accepted and purchased this product for use on, among other vessels, its destroyers and cruisers, because our anti-chafe product outperforms all other products on the market for similar purposes” (Holland Decl. ¶ 17) is unsupported by the record. Appellants have not provided any evidence as to the procurement standards applied or the dispositive factors considered in the decision of the United States Navy to select the anti-chafe products used on the United States vessels listed in Paragraph 17 of the Holland Declaration. Moreover, the record does not specify the structural details of the anti-chafe products used on the United States vessels. Accordingly, it cannot be determined whether their selection was made because of features recited in Appellants’ claim 1 or whether other, unrecited features were critical to the selection decision.
25. The Supplemental Holland Declaration states that, despite the wide difference in price between JHRG’s anti-chafe cover and other protective covers used in similar applications, “JHRG’s covers continue to sell based on degree of protection offered, their durability, and their light weight” (Supp. Holland Decl. ¶ 5).

26. The slick inner surface of a protective sleeve made from yarns of fibers sold under the trademark SPECTRA® results in minimal friction and minimal heat build up between the protective sleeve and mooring or docking lines, thereby reducing signs of abrasion, burn, or melt as compared with prior art coverings comprising polyester and nylon, which will melt or burn when the friction is great enough (Holland Decl. ¶ 18).
27. The relatively light weight of JHRG's covers compared with other conventional materials makes them ideal for divers' umbilical cords up to 200 feet long (Suppl. Holland Decl. ¶ 6).
28. The slick surface of covers made from fibers sold under the trademark SPECTRA® permits the covers to slide with movement of the umbilical cords, thus not hampering movement of the divers (Suppl. Holland Decl. ¶ 6).
29. Appellants disclose that a lamination 30, such as a thermoplastic film of polyethylene or ethylene vinyl acetate, is applied to the outer surface 22 of the sleeve and may also be applied to the inner surface 24 of the sleeve to further enhance fluid or particulate penetration resistance of the fabric (Spec. 6:15-22).

DISCUSSION

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727,

1734, 82 USPQ2d 1385, 1391 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of ordinary skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). *See also KSR*, 127 S.Ct. at 1734, 82 USPQ2d at 1391 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

As to the scope and content of the prior art, Andrieu discloses a protective sleeve for lengths of material such as cables, the sleeve comprising polyester and being intended to provide protection from abrasion and from damage from moving machinery parts and the like (Facts 1 and 2). Holland discloses an improved, lightweight fabric having a high level of tear-resistance, abrasion resistance, cut-and-stab resistance, and chemical and cold resistance for improved strength and durability, the fabric made from yarns available from Allied Signal under the trademark SPECTRA® (Facts 4-6).

As to the differences between the subject matter of claim 1 and the prior art, Andrieu does not expressly disclose the protective sleeve is made of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier, wherein the protective sleeve is cut-resistant and tear-resistant, as called for in claim 1 (Fact 3). Holland, on the other hand, discloses a fabric made of high performance yarns having a tensile modulus equal to or greater than 150 grams/denier and a tenacity equal to or greater than 7 grams/denier,

wherein the fabric is abrasion-resistant, cut-resistant and tear-resistant (Facts 4, 8, and 9), but Holland does not specifically disclose such fabric for use in a protective sleeve.

Modification of Andrieu's protective sleeve so as to comprise the improved fabric made from yarns available from Allied Signal under the trademark SPECTRA® taught by Holland, as proposed by the Examiner, would result in the subject matter of Appellants' claim 1. Accordingly, the dispositive issue in this appeal is whether the proposed modification would have been obvious to a person of ordinary skill in the art at the time of Appellants' invention.

Appellants' argument that there is no reason or suggestion in Andrieu of a modification to utilize a yarn such as that taught by Holland (Br. 10) is unsound. While there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *KSR*, 127 S.Ct. at 1741, 82 USPQ2d at 1396. Andrieu's teaching that the protective sleeve is intended to provide protection from abrasion and heat and from damage from moving machinery parts and the like (Fact 1) would have prompted a person of ordinary skill in the art to seek a material that is abrasion-resistant and cut-and-stab resistant. Holland recommends its improved fabric for applications where a lightweight, tear-resistant, abrasion-resistant, stab-and-cut resistant, chemical resistant, and cold resistant fabric is required (Fact 8). Thus, while Holland discloses its improved fabric for use in making a fabric cargo cover (Fact 4) and not

specifically for use in making a protective cover for cables and the like, a person of ordinary skill in the art at the time of Appellants' invention would have recognized that Holland's improved fabric would improve similar devices, such as the protective sleeve of Andrieu, in the same way that it improves the fabric cargo cover, that is, by making it more durable and lighter in weight than a sleeve made from vinyl-coated nylon or polyester (Fact 6).

"A person of ordinary skill is also a person of ordinary creativity, not an automaton." *KSR*, 127 S.Ct. at 1742, 82 USPQ2d at 1397.

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id., at 1740, 82 USPQ2d at 1396. The relevant inquiry is whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.*

Holland's disclosure of a fabric having a high level of tear-resistance, abrasion-resistance, cut-and-stab resistance, and chemical and cold resistance (Fact 5) would have prompted a person of ordinary skill in the art to use such a fabric for the protective sleeve of Andrieu, an application where a tear-resistant, abrasion-resistant, cut-and-stab resistant, chemical and cold resistant fabric is needed to protect cables and the like from damage

by moving machinery parts and the like (Facts 1, 2, and 8). Given Holland's teaching of test results pointing to an expectation of longer product life for a cargo cover made of such fabric as compared with prior art cargo covers made from vinyl-coated nylon (Fact 7), the combination of Holland's improved fabric with Andrieu's protective sleeve is nothing more than the predictable use of prior art elements according to their established functions.

Appellants' bald argument that the teachings of Andrieu would provide a substantial disincentive for one of ordinary skill in the art to substitute Appellants' significantly more expensive yarn material (Br. 10) is not supported by the reference. Specifically, while Andrieu refers favorably to polyester as a relatively inexpensive material, Andrieu gives no indication that any added expense for an improved fabric, such as the one disclosed by Holland, is intolerable or would involve an undesirable trade-off. The fact that a benefit, such as improved durability, comes at the expense of another benefit, such as cost savings, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. "Instead, the benefits, both lost and gained, should be weighed against one another." *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n.8, 53 USPQ2d 1580, 1587 n.8 (Fed. Cir. 2000). As the Holland Declaration, with its Exhibits, illustrates (Facts 13, 14, 16, 18, 19, 20, and 24), considerations of durability and performance often outweigh cost considerations when selecting a product, particularly in the field of abrasion-resistant protection sleeves.

Appellants argue that the Holland Declaration and attached Exhibits show that the claimed anti-chafe product solves a long-felt need in the maritime industry that others failed to solve (Br. 11). In particular,

Appellants point to Paragraphs 12, 13, 14, and 16 of the Holland Declaration and Exhibits A, B, C, and E (Br. 12).

An argument based upon long-felt need must be accompanied by evidence that demonstrates the existence of a problem which was of concern in the industry and has remained unsolved over a long period of time. *See Vandenberg v. Dairy Equip. Co.*, 740 F.2d 1560, 1567, 224 USPQ 195, 199 (Fed. Cir. 1984). This can be accomplished, for example, by the testimony of experts in the industry, or publications and the like, which speak to the duration and extent of the problem, and of the substantial effort and resources which had been expended during that time in attempts to solve the problem. *See Railroad Dynamics, Inc. v. A. Stuki Co.*, 579 F. Supp. 353, 363, 218 USPQ 618, 628 (E.D. Pa. 1983), *aff'd* 727 F.2d 1506, 220 USPQ 929 (Fed. Cir. 1984). Once the long-felt need has been established, it must further be shown that the invention satisfied that need. *See In re Cavanagh*, 436 F.2d 491, 496, 168 USPQ 466, 471 (CCPA 1971). This can be demonstrated, for example, by evidence establishing commercial success and that the industry purchased the claimed invention because it satisfied the long-felt need. *See W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1555, 220 USPQ 303, 315 (Fed. Cir. 1983).

Exhibit A, referred to in Paragraph 12 of the Holland Declaration, merely evidences an opinion by a technical editor of SAIL magazine that JHRG's anti-chafing product compares very impressively with "tea towels and underwear [wrapped] around [his] dock lines" (Fact 18). The wrapping of tea towels and underwear around dock lines does not strike us as expenditure of substantial effort and resources to solve a problem. Moreover, Exhibit A does not speak to the duration and extent of the

problem alleged to be solved by the JHRG anti-chafing product discussed therein.

Exhibit B and Paragraph 13 of the Holland Declaration merely evidence a business relationship between JHRG and Samson, with Samson being selected as exclusive distributor of high-strength Chafe Gear from JHRG (Fact 19). The described utilization of used fire hose, a product typically available for significantly lower cost than the JHRG product (Fact 19), as an anti-chafe product hardly amounts to expenditure of substantial effort and resources to solve the problem of chafing of cordage and rope products. Neither Exhibit B nor Paragraph 13 speaks specifically to the duration and extent of the problem. While Exhibit B, a press release by Samson, touts the JHRG chafe gear products as offering significant advantages over other chafe products on the market (Fact 19), there is no indication that this is anything more than self-serving promotion of products that Samson has entered into a business relationship to distribute.

Exhibit C and Paragraph 14 of the Holland Declaration refer broadly to several different types of anti-chafe gear, used by Titan on its diver umbilicals and hydraulic pump and tooling hoses prior to using JHRG chafe gear, that Titan judged to be inferior to the JHRG gear, but they do not specify what those several different types of anti-chafe gear were (Fact 20). Further, neither speaks to the duration and extent of the problem of chafing of umbilicals and hoses or unsuccessful expenditures of effort and resources by others to solve the problem.

Exhibit E and Paragraph 16 of the Holland Declaration merely quote Mike Ring of McAllister Towing of Florida as describing some sort of chafe gear, presumably from JHRG, identified as “JHRG #SPAC-V-6x72’,” as

“the best piece of chafe gear I’ve seen in 30 years in the business” (Fact 22). Neither gives any indication that a persistent problem remained unsolved for 30 years, much less speaks to expenditures of efforts and resources by others to solve such a problem. Moreover, neither Exhibit E nor Paragraph 16 of the Holland Declaration clearly establishes what product is described in Exhibit E or whether it is even covered by claim 1, thereby severely limiting the probative value of Exhibit E (Fact 22). Exhibit F, also mentioned in Paragraph 16 of the Holland Declaration, is likewise of limited probative value for the same reason (Fact 23).

For the above reasons, the Holland Declaration and its Exhibits relied on by Appellants to establish Appellants’ claimed invention satisfies a long-felt, unsolved need, fall short of doing so.

Appellants also argue Appellants’ claimed invention produces unexpected results in the market (Br. 13). Specifically, Appellants argue that the two years it took for potential customers to appreciate the results/benefits they would see from the substantially more expensive product of JHRG (Fact 16) was an unexpected result (Br. 13). That it took JHRG two years to see any appreciable gross sales of the anti-chafe product should not have been unexpected given the manner of marketing (Fact 15). The two-year delay may simply be explained by the fact that customers typically learned of the anti-chafe covers by “word-of-mouth” advertising (Fact 15). Moreover, while the substantial improvements in durability and service life should not have been unexpected to one of ordinary skill in the art, in light of the teachings by Holland of the benefits of the improved fabric (Facts 5-7), the reluctance of consumers, at least initially, to purchase

a new product that is considerably more expensive than other available products (Facts 13 and 14) likewise is not terribly surprising.

The other unexpected result cited by Appellants (Br. 13) is that the relatively slick inner surface of JHRG's anti-chafe protective cover combined with the high tensile strength of the fabric itself results in minimal friction and minimal heat buildup (Fact 26). As Appellants have not specified all structural details of the JHRG anti-chafe cover alluded to, the Holland Declaration is insufficient to establish that the characteristic of minimal friction and heat buildup is the result of the features recited in Appellants' claim 1, rather than other, unrecited features, such as a lamination 30 applied to the inner surface of the sleeve (Fact 29) or grommets (Fact 21). Accordingly, the Holland Declaration does not adequately establish that the evidence of unexpected results is commensurate with the scope of claim 1. Moreover, it is not even clear that a slick surface would be an unexpected characteristic of a fabric made from fibers sold under the trademark SPECTRA® as taught by Holland or whether the slick characteristic of the fibers (Facts 26, 28) is what gives the fabric its abrasion-resistance.

The relative light weight of JHRG's covers (Fact 27) likewise is not an unexpected advantage of covers made of fabric comprising fibers being sold by Allied Signal under the trademark SPECTRA®. Holland points out this advantage of such an improved fabric (Fact 6).

Finally, Appellants argue that the Holland Declaration evidences commercial success of the JHRG anti-chafe product (Br. 13-14). JHRG's gross sales of over \$380,000 attributable to the anti-chafe covers and sleeves since their introduction in 2002 (Fact 12), without evidence as to whether

this represents a substantial share of any definable market, provides a very weak showing of commercial success, if any. *See In re Huang*, 100 F.3d 135, 140, 40 USPQ2d 1685, 1689 (Fed. Cir. 1996).

JHRG's evidence of sales of their anti-chafe product to the United States Government for use in United States vessels (Fact 24) likewise is insufficient, by itself, to indicate commercial success. Appellants have provided no evidence to establish what share of the government procurement of anti-chafe gear this represents or how many other suppliers of alternative products for the same or similar use have opted to participate in this procurement process, and what factors led to the selection of JHRG as a supplier.

Even assuming Appellants had sufficiently demonstrated commercial success, that success is relevant in the obviousness context only if it is established that the sales were a direct result of the unique characteristics of the claimed invention, as opposed to other economic and commercial factors unrelated to the quality of the claimed subject matter. *Id.* In other words, a nexus is required between the sales and the merits of the claimed invention. Appellants have not established that any commercial success of JHRG's anti-chafe products was directly attributable to characteristics of the *claimed* invention, rather than other, unrecited features, such as grommets, which were identified by at least one consumer as the key to the success of the JHRG anti-chafe gear for his application (Fact 21). Additionally, while the Holland Declaration states that JHRG spent less than \$50,000 promoting the anti-chafe gear through trade shows, sales calls, and direct mailings (Fact 15), there is no evidence in the record to establish how this compares with the advertising norms of the industry at that time or whether this was a

significant expenditure for a company of only 35 employees (Fact 10). Likewise, the more than two years it took for JHRG to convince potential customers that the anti-chafe covers and sleeves were worth the expenditure (Fact 16) may speak more to the manner of advertising, in which customers typically learn of the anti-chafe covers by “word-of-mouth” (Fact 15), than it does to attributes of the product itself or the unexpected benefits thereof. As for the sale of JHRG’s anti-chafe gear to the United States Government for use on United States vessels, Appellants have not supplied sufficient evidence to permit us to ascertain whether these sales were attributable to the unique characteristics of the claimed invention, rather than other factors, such as characteristics of JHRG as a vendor, for example.

After reviewing all of the evidence before us, including the totality of Appellants’ evidence, it is our conclusion that, on balance, the evidence of nonobviousness fails to outweigh the evidence of obviousness discussed above and, accordingly, the subject matter of claim 1 would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103 at the time Appellants’ invention was made. *See Richardson-Vicks Inc. v. Upjohn Co.*, 122 F.3d 1476, 1483, 44 USPQ2d 1181, 1187 (Fed. Cir. 1997). We therefore sustain the rejection of claim 1, as well as claims 2-9 and 27-35 standing or falling therewith, as unpatentable over the combined teachings of Andrieu and Holland. We likewise sustain the rejections of claim 40 as unpatentable over the combined teachings of Ratigan and Holland, claims 10-12 and 36-38 as unpatentable over the combined teachings of Andrieu, Holland, and Kite, and claims 13 and 39 as unpatentable over the combined teachings of Andrieu, Holland, and Holt,

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which Appellants have not argued separately from the rejection of claim 1 as unpatentable over the combined teachings of Andrieu and Holland.

SUMMARY

The decision of the Examiner to reject claims 1-13 and 27-40 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED

vsh

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